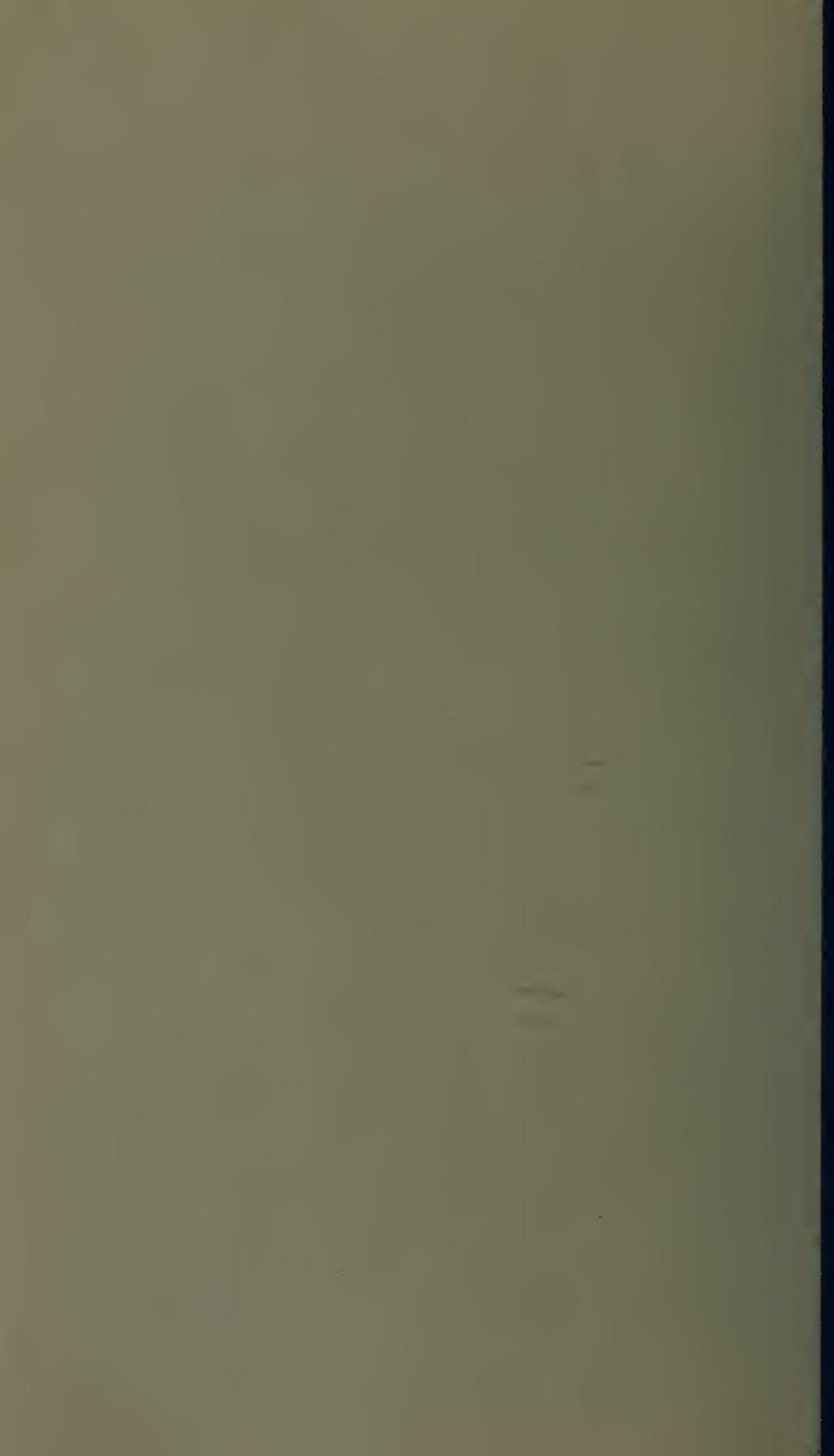


Nova Scotia. Dept. of Mines  
Annual report on mines  
1869



REPORT

OF THE

Chief Commissioner of Mines

FOR THE

PROVINCE OF NOVA SCOTIA,

FOR THE YEAR 1869.



HALIFAX, N. S.,  
PRINTED BY CHARLES ANNAND,  
1870.





# REPORT

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## Chief Commissioner of Mines

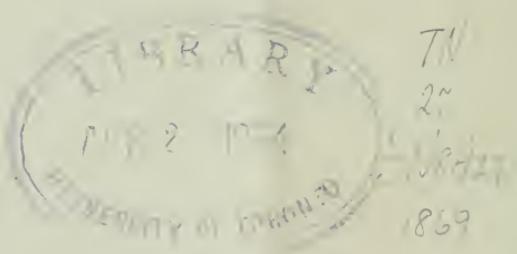
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### PROVINCE OF NOVA SCOTIA,

FOR THE YEAR 1869.



HALIFAX, N. S.,  
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## REPORT.

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DEPARTMENT OF MINES,

Halifax, January 20, 1870.

SIR,—

I have the honor to submit, for the information of His Honor the Lieutenant Governor, the following Report on the affairs of the Department of Mines for the year ending the 31st day of December, 1869.

### SHERBROOKE

still holds its place as the leading gold-producing District. During the year there were 19 companies operating in this locality with varied success.

The Palmerston, Metropolitan, and Dominion companies' works are on what is called the Palmerston lode—a belt of alternate layers of slate and quartz, similar to that recently found at Isaac's Harbor, fully 20 feet in width. The Dominion and Palmerston companies have each their own crushing mill, and are doing a large and profitable business. The Metropolitan has as yet no crusher, and their works have therefore been limited.

The Canadian, Meridian, Chicago, Wentworth, Crescent, and Caledonia companies have been operating but on a limited scale.

The Kingston and Sherbrooke companies have sunk a shaft each on the Wellington and Dewar lodes.

The Wellington is still doing a large and profitable business, the result of the last month's work (December) being 666 ounces gold from 500 tons of quartz, at a cost of 3800 days' labor.

The Rockville company have in permanent work sunk two shafts on the Dewar lode; but the mine is now worked on tribute, and pays the shareholders at the rate of ten per cent on the invested capital.

The Hayden and Derby companies have invested a considerable amount in permanent works, in cross cutting, &c., with good results.

The New York and Sherbrooke company has been principally engaged in prospecting, resulting in the discovery of some good lodes, from which satisfactory returns have been received.

The above are in the older worked portions of the district.

Outlying, to the south of the old works, about half a mile, the McKinnon lode has been opened, which promises well. This property has lately been purchased by Messrs. McClure and Snow, who have commenced work thereon.

### COCHRAN HILL.

The Cochran Hill company, Kirk & Company, and Mr. McDonald, have each opened a number of lodes, which promise good results. A crushing mill, water power, of 15 stamps, has been erected at Melrose, about two and a half miles from the Cochran Hill district, and operations in the locality indicate continuous work.

### WINE HARBOUR.

In this District a large amount of permanent work has been performed, during the past year, in sinking shafts, cross tunnelling, &c.

The Napier company (successors to the Provincial company) has sunk 3 shafts, drove 100 feet of cross tunnelling, erected efficient pumping and hoisting machinery, driven by steam, with shaft and engine houses, and have their works in an advanced stage, preparatory to mining a large quantity of ore in a scientific and workmanlike manner.

The Globe company's property, worked for some time by Mr. McIntosh, is now being mined upon a lode 5 or 6 feet in width, composed of alternate layers of rock and slate; and although the yield per ton has been small, the returns have given a fair profit. The mine has been worked by open trench from the surface, which is now at a depth requiring steam pumps and hoisting machinery, intended to be furnished by the company.

The Eldorado company are still progressing with their tunnel, which is now about 500 feet in length, crossing the metals, and cutting some workable lodes, on one of which 2 shafts are being sunk, and one on another lode; a further extension of the tunnel will cut a number of known gold-bearing lodes, besides draining a large surface of very wet mining ground.

The Eureka company has been principally engaged in stoping and ordinary mining, although they, too, have done some preparatory mining on a new lode recently discovered. Although the yield from this district for the past year was small, much larger returns may hereafter be confidently expected, as the mines are being opened and worked in a scientific manner, and on lodes that formerly yielded profitable results.

#### TANGIER.

The Strawberry Hill company, which have been continuously and profitably engaged in mining, have made considerable additions to their permanent works.

The property held by the New York and Nova Scotia company has been purchased by H. R. Fletcher, Esq., who has now the works in active operation, receiving satisfactory returns.

At Old Tangier but little has been done. The Gladstone or Beneficiary company mine at this place has also been purchased by Mr. Fletcher. A small but very rich lode was lately found on this property, and profitably worked for a short time.

#### MONTAGU.

The Union mine, now owned by R. G. Leckie & Co., and called the Montagu mine, was continuously worked since the first discovery of gold in this district, in 1863. The mining operations were confined to two lodes, the "Belt" and "St. Patrick," the works on which are now suspended; on the "Belt" lode from the insufficiency of the engine and pumping apparatus; on the "St. Patrick" from the want of necessary machinery. The works now carried on by this company are on two lodes recently discovered, which have proved remunerative.

There is in course of erection a crushing mill of 15 heavy stamps (in place of one of 8 light stamps), with the modern appliances for saving the arsenical and iron pyrites and sulphides, which in this district, and particularly in the "Belt" lode, are very abundant and highly auriferous. There are now on this property four rich lodes (tested), which only require efficient machinery to enable them to be vigorously and profitably worked.

The Albion mine (formerly called the McQuarry), now owned by Messrs. W. & E. Lawson, after a long suspension, is now and has been since August last in active operation. The works are confined to the "Belt" lode. Hoisting and pumping machinery has been erected; the pumps are such as are used in the oil wells in Canada, which have proved both economical and efficient, and are well worth the inspection of those engaged in gold mining.

The above are the two principal mines in the district.

The Bendigo mine was opened, and a small crusher built by an association of Welsh miners; the quartz shewed some gold, but when crushed the yield was small, possibly from the crusher being new and the copper plates not properly coated. Since May the association dissolved, and the mine has passed into other hands. I have understood that want of funds and disagreement among the parties were the causes.

Messrs. Temple & Salter prospected on a lead of from 12 to 14 inches, which, judging from some tons crushed at the Montagu crusher, with suitable machinery on the ground, could be made to pay. Some prospecting has been done by a number of others, but with what success I am unable to say.

The prospects of this district are now brighter than for some years past. There is, however, a drawback in the scarcity of fuel for the use of the engines, the distance by the present roads from Dartmouth being not far short of seven miles. A new road of about two miles has been proposed that would reduce the distance about one-third, and materially lessen the cost of the carriage of coal from Dartmouth.

Since writing the above I received the following report from Mr. W. H. Browne, the manager of the Montagu mine,

which I consider peculiarly interesting, and have therefore taken the liberty of embodying with these remarks:

"The only mine in this district which has been continuously worked throughout the year is the Montagu, (late Union mine,) belonging to Messrs. Leckie & Co., on which operations have been in progress on four lodes. The Belt, Werner or St. Patrick, Lydia and Sarah, of which the two latter are new discoveries.

The Belt, which has been producing a very considerable amount of gold monthly, was suspended in February in consequence of the total insufficiency of the pumping and hoisting engine to do the work required. The lode has since been idle, awaiting the new machinery now being erected. A powerful engine, 12-inch cylinder, with suitable pumps, on the excellent plan adopted by the Messrs. Lawson on the adjoining mine, are being put up, and a very short time will see this valuable lode again at work. Its width is 5 inches, the deepest shaft 148 feet, and it is opened a length of 368 feet in this mine and produces quartz this entire distance, yielding an average of close upon 2 oz. per ton.

Pockets of highly auriferous arsenious iron pyrites (mis-peckel) are found (often in considerable numbers, and weighing from 20 to 150 lbs. each,) attached to the lead on the footwall. These are very valuable, but being difficult to treat have been hitherto somewhat neglected. One of these weighing 110 lbs., from the Montagu mine, was crushed last summer, (by a process somewhat different from the ordinary,) with 14 cwt. of poor rock, and yielded 4 oz., 9 dwt., 6 grs. smelted gold, or 80 oz. per ton. They are found in this mine, and that of the Messrs. Lawson, in the Belt lode only. There will be 8 shafts in use on this lode, all of which are commanded by the engine. Pumps capable of lifting 5000 gallons of water per hour (a quantity in excess of that ever produced) will be erected, the smaller of which will supply clear water to the boiler from a cross cut 90 feet down.

The Werner or St. Patrick lode was worked to a considerable extent during the year, and produced a good deal of gold, the quartz yielding  $2\frac{1}{4}$  oz. per ton, \$2 per foot of lead. It produced some splendid specimens. It is opened 200 feet

long, of which 100 feet is pay ground. It has reached a depth requiring machinery for pumping, and now awaits it. This lode is valuable, and should have further developments made on its extension.

In July some prospecting was done west of the crusher on this company's property, on hitherto unexplored ground, resulting in the discovery of several lodes, of which two, the Lydia and Sarah have proved quite productive. The former is already opened a length of 320 feet; its deepest shaft is 55 feet down. The lode averages four inches in width, and is very rich in places. The whole lengths opened will yield  $1\frac{3}{4}$  oz. per ton.

The Sarah lode is seven inches wide, has been opened about one hundred and forty feet in length in three shafts, the deepest fifty feet. The first crushing from it yielded 3 oz. 5 dwts. per ton; and it has since maintained a high yield.

These two lodes are traversed by many cross leads, of various widths, from quarter of an inch to one foot, of which three or four are quite rich; one especially so at its point of intersection with the main lodes, and it shews much gold as far back as it has been opened.

The old crusher on this mine having become unequal to the amount of quartz likely to be raised in the district, and having run a long time, a new one of much greater capacity has been erected, and rapidly approaches completion. It has fifteen heavy stamps in place of the eight light ones of the old mill, and will have complete arrangements for saving and concentrating the large quantities of auriferous pyrites and sulphides in the quartz of Montagu which have hitherto been completely neglected, and run into the dumps of tailings, which from this source alone assays on the average 13 dwt. per ton of tailings, (from assays made by Mr. Longmaid,) and this saving of the pyrites is expected to make a very considerable increase in the yield of gold from many of the lodes in the district.

A very considerable amount of prospecting has been done on this mine during the year, and many lodes have been opened on and tested, several of which will come into profitable operation with the cheaper crusher now erecting.

No less than fifty lodes, of sizes from an inch to four feet,

are known to exist on this mine, and no lode yet tested in Montagu has yielded less than 5 dwt. per ton, with one exception, the Cogswell lode, which gave 4 dwt. only. This mine, with the thorough equipment it is now receiving, and its four rich lodes (proved) will very much increase its past production.

The Albion mine, belonging to the Messrs. Lawson, adjoining the previously described mine, and on the Belt lode also, was again opened at the latter end of summer, with very complete and effectual pumping and hoisting machinery, and has since been in profitable operation. The three crushings it made in 1869 (at the Montagu mill) yielded an average of over  $2\frac{1}{2}$  oz. per ton, and one completed since gave over 3 oz. The pockets of auriferous, arsenious pyrites (mentioned previously) are not included in the crushings, being saved for other treatment.

The pumping and hoisting machinery is admirably adapted to its work, and for economy and use is not surpassed in the province.

The pumps are on the model used in the oil regions, and capable of pumping five thousand gals. per hour, are light and easily handled, yet strong, a great consideration when the shaft is being continuously sunk. The main pump has five feet stroke, diameter  $3\frac{3}{4}$  inches inside, the rod working inside the column. A smaller pump supplies the boiler with clear water from the cross-cuts."

## WAVERLEY.

Operations have been carried on in this district by the Lake Major, Rockland, American Hill and Waverley gold Mining companies, and by Leopold Burkner, Esq. The most noticeable feature in this district is the tracing of the southern outcrop of the celebrated Tudor lode, by a series of openings connecting two points eleven hundred feet distant, and thus proving the correctness of the views entertained by Professor Hind of the geological structure of this district, as described in his report and fully exemplified in the map accompanying that report. The South Tudor has been now traced for up-

wards of eleven hundred feet, and the mean difference between the outcrop assigned by Professor Hind and the actual outcrop, disclosed by shafts, does not exceed twenty-five feet six inches throughout that horizontal distance.

Mr. Burkner is at work on the above named South Tudor, with every indication of success.

### OLDHAM.

In this district there has been quite an increase of business done by companies and individuals operating on what were abandoned mines. The principal part of the work done, and gold obtained, has been by the Sterling company, who have acquired several small properties formerly partially worked, and besides have recently obtained the "Frankfort" property. Preparations are being made by the Sterling company to largely extend their works, machinery, &c.

Measures are also in progress to again open the Boston and Oldham mine, by a company recently formed.

The Richey and Fraser mine has been again re-opened, and is now worked by Capt. Coxetter, by whom some remarkably rich rock has been raised, and the works carried on with vigor and success.

Mining has also been carried on, on a small scale, by Messrs. Oakes, Pearson, Donaldson, Fraser, Bayne, and Woodruffe. A small crusher of two batteries, driven by water, has lately been erected, and on the whole the prospects of this district are more encouraging than for some time past.

### RENFREW.

The mining in this district has been principally carried on by the Ophir and Colonial gold mining companies, and by Mr. Charles A. F. Gay.

The works of the Ophir gold mining company are on the North, South, McClure and Brook lodes. A shaft on the North lode is now at a depth of 400 feet. The work on this and the South lode has lately been suspended, but the McClure and Brook lodes are still operated on.

The Colonial company continued to work the North lode

until lately, when they also were obliged to cease mining in consequence of their not being provided with sufficient appliances to raise the water, which was largely increased by the suspension of the Ophir. The Colonial have also worked the McLeod lode, and re-opened others that were formerly worked, besides commencing operations on some new ones.

The works on the free claim have been revived by Mr. Gay.

### LAWRENCETOWN.

This district, so far as obtaining gold is concerned, may be said to be at a stand still. On the Werner property a large amount of permanent work has been done by the Westminster gold mining company of Nova Scotia, limited. A crusher of four batteries, of five stamps each, has been erected (two of the batteries only are yet in position and working), with hoisting and pumping machinery, all driven by water power. A large amount of quartz has been raised, machinery for saving the pyrites and amalgamating purposes erected and crushing commenced. The Waddelow mine and crusher now held by James Carson, Esq., has been comparatively idle during the year, although when worked by the Messrs. Waddelow the yield per ton was about sixteen dwts., at a cost of \$4 for raising and crushing.

At the Strange mine nothing has been done since the date of my last report.

### UNIACKE.

The Uniacke gold mining company's works, commenced in 1867, are still carried on with a steady return of profit to the owners. A large amount of permanent work has been performed—a tunnel, cross-cutting the metals, has been driven a distance of 135 feet, exhibiting a number of gold-bearing leads, at a depth of 110 feet from the surface: the quartz mined from the two now worked yielding a handsome profit; with larger crushing power the property would be in a position to profitably employ more men than it has ever been able to do before.

The Montreal gold mining association have been chiefly

employed in operations of an exploratory character, by sinking trial shafts on several lodes preparatory to locating permanent works. The results of the explorations, as reported by the manager, Mr. W. M. Robinson, are of a very satisfactory character.

The operations of the Central, Prince of Wales, Brunswick Queens, West Lake and Toronto Co.'s, during the year, were limited in extent, and chiefly of an exploratory character.

#### OVENS, LUNENBURG.

The works in this district, principally carried on by Smith McKay and associates, by whom a considerable amount of labour was performed, have not as yet been attended with very satisfactory results. The Waddelow mine at Indian Path has been to a large extent idle, at which I am the more surprised, as, from the appearance of the lode, when visited by me in 1868, I had every reason to believe it would pay a handsome profit; and I strongly suspect that the want of success is largely due to the crushing and amalgamating apparatus, particularly the latter, which, like the appliances generally used in the province, is only adapted to secure the coarse free gold.

Mr. J. R. Waddelow, in a recent letter, furnishes the following:

"Little has been done this year. Some prospecting was done in the summer; in consequence of the discovery of some large and rich surface boulders we found ten or twelve lodes of various sizes up to five feet, some of which shewed gold very well, but we did not find either of those which we were looking for. However as no natural impediment to prospecting exists in the locality, and as our trench did not extend more than about 125 feet, there is no reason why they should not be found.

"We also made some tests of surface earth from different parts of the property, amounting in all to about 25 tons, which gave sufficient to shew that several acres of it might be taken away and crushed at a profit of about a shilling a ton; this, though insignificant in a small way, would amount to a great sum of money on the many thousands of tons which exist here, besides, of course, uncovering the lodes. \* \* \*

"We have discovered beyond a doubt that a large proportion

of gold was lost in our earlier crushings, as we always suspected, but never could prove. We find now that all the flowered mercury that we can wash out of the tailings contains from 4 to 6 dwts. of gold to the pound, and therefore since 80 lbs. of mercury were lost, from 16 to 24 oz. of gold were also lost. This is rather an important discovery, as it raises the total average returns from  $6\frac{1}{2}$  to 9 dwts., which would of course be a very satisfactory yield on a large lode like ours."

### WAGAMATCOOK.

At this district but little has been done. A crusher is, I understand, in course of erection.

### MUSQUODOBOIT, "JENNINGS,"

so called, has not as yet been proclaimed a gold district. Two crushers were built and put into operation in April, one of 10 stamps, built by Messrs. Hyde, and the other, of 8 stamps, by Mr. Bushing. The Messrs. Hyde have also constructed a tramway of about  $3\frac{1}{2}$  miles in length, between the mines and crusher, and a number of buildings necessary to carry on a large business. With the exception of a few tons at their mill in April there was no crushing done at the Hyde mill until September, when the tram-road was completed, since which time the crusher has been steadily employed. The lode, which is about 5 inches in thickness, is opened about 600 feet in length, and proves highly auriferous throughout. Lodes of larger size are found on this property; one, of 18 inches, gives about 7 dwts. per ton, and is intended to be worked.

### THE BUSHING MINE.

The chief operations at this mine are on a large lode, (similar in character to that recently found at Isaac's Harbor, and the belt on which the Palmerston, Dominion, and Metropolitan works are established in Sherbrooke,) about 20 feet in thickness, and composed of alternate lodes of quartz and slate. The yield on this lode has been from 6 dwts. to 2 oz. to the ton, and has been opened about 600 feet, from which a large amount of quartz was crushed. Some work has been done

on what is called the Dunbrack lode, which was found to be from 12 to 15 inches in thickness, and nearly horizontal; one crushing of 22 tons gave 71 oz. Much labor was expended in draining this locality, but work had to be suspended at the time of the fall rains. Some difficulty will be experienced in determining where the permanent works should be located, in consequence of the foldings in the rocks; but on the return of dry weather in the summer that difficulty will no doubt be over come.

#### TOUQUOY MINE.

Work was only commenced on this mine in October last, when a small cross vein was discovered, from which one ton yielded 23 oz. of gold, and although no such return was again received, it is still worked, and it is said at a profit.

About 3 miles west from the above mines some lodes were discovered from which a small quantity of ore was crushed with fair results.

The prospects of this district are decidedly favorable, but both the Hyde and Bushing mine have reached that stage that hoisting and pumping engines are absolutely necessary.

#### FIFTEEN MILE STREAM

Is situated on the head waters of the east river of Sheet Harbor, near the line dividing Halifax and Guysborough counties, and about twelve miles south of the so-called Guysborough road. A large amount of prospecting has been done in this district over a large surface, and a number of workable leads found. A large number of boulders, rich in gold, have been found in this field, which is a large one, denoting the presence of valuable lodes; but little mining, however, has been done, owing in a large measure to the want of ready means of transport, the present being only winter roads, impassable in the summer excepting for foot passengers. There are two crushers in the district driven by water-power.

#### ECUM SECUM.

A small crusher was erected at this place by the Atlantic company, by whom a small amount of mining was done; but

it not proving remunerative, work was suspended August last. In 1868 prospecting was actively engaged in, and a good deal of gold was found in the surface boulders. On a visit in the summer I noticed, over an extensive surface, a large number of sharp and well defined ridges (extending a long distance) of quartzite, the intervening hollows composed of bands of slate and quartz lodes, (this has been proved by the openings made,) and from the success of a number of mines (such as the Palmerston and others) working in the same kind of lodes, there is every reason to believe that profitable mining operations may yet be carried on in this locality.

### GAY'S RIVER.

The work at this district is confined to alluvial mining, in which a most important discovery has lately been made. Upon the works of Mr. Geo. Gay a depression was found in the bed rock, running in a southeasterly and northwesterly direction, in which a large amount of gold was obtained; which, like the *leads* found in Australia and California, is supposed to be the bed of an old water course. If in future explorations this supposition is proved to be correct, it cannot fail to have an important effect on the alluvial mining of the province.

A considerable amount of tunnelling has been done by Messrs. Werner & Tremain, Huff & Co., McLean & Co., and Mr. John Annand. The amount of gold obtained by these parties is small, they not having apparently found the lead. There is a small crusher in this vicinity, but it has not been in operation during the past year.

### STORMONT.

The mining in this district during the year had almost come to a stand still, until some time in September a remarkably rich band of quartz and slate was discovered, which has been opened in different places a distance of about 600 feet. The lode consists of alternate beds of quartz and slate, and is about 20 feet in width, containing twenty-one quartz leads, from one to ten inches in thickness, all shewing gold. From

the most western opening 839 lbs. of quartz was taken and crushed, giving 2 oz., 12 dwts., 02 grs., being equal to 6 oz., 03 dwt., 17 grs. per ton; and from three openings from the Gisborne mine, a little over 5 tons were taken, which yielded 33 oz. of bar gold.

Active operations are now carried on in the latter mine, and measures are in progress to erect a first class crusher in the spring. A large amount of quartz has already been raised.

The Mulgrave company's mine has passed into the hands of Hugh Allan, Esq., of Montreal. The shaft sunk last year has not proved a success, but other lodes have been found which it is supposed will be of paying quality.

There is a good shew of gold in the alluvium near the mouth of Isaac's Harbor, but it has not been worked during the year as was expected. A company has, however, been lately organized, with the view to active operations in the ensuing summer.

At Country Harbor the operations have been limited. The only crusher built there, which was partially burnt early in the year, has, I understand, been repaired, and work again commenced on a small scale. Although the returns for this year are unprecedentedly small, yet from the fact of the discovery made in September, the new lodes found on the Mulgrave property, and the prospect of the alluvium being worked, we may confidently expect a large increase of gold from this district for the year 1870.

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In a review of the business of gold mining for the past year it is proper to state that the results have not been as large as anticipated, partly, no doubt, owing to the depression of business generally, but largely to the want of skill in management, expensive modes of mining, heavy works engaged in without an adequate object, and the utter absence of any but the most simple appliances for saving pyrites, mercury and fine gold, compared with the appliances used in other quartz-mining countries. The wonder is not that the mines are not in the most prosperous condition, but that we have any at all at work; and but for the fact that a few rich spots in lodes

have been found cropping out at or near the surface, it is probable we should not have any of our gold mines in operation at the present time.

In the colony of Victoria gold mining is carried on by sinking deep shafts, and by overhand stoping almost exclusively. In this mode of mining it is necessary to have a knowledge of the paying qualities of the rock to be mined, and a capital much larger than many of our miners can command, and although much cheaper than the mode of underhand stoping, used by a large number in this province, yet I do not think that the latter method should in all cases be condemned ; for until we have better appliances for saving gold the common auriferous lodes will not pay.

In Victoria these appliances are complete, and the amount of gold lost very small ; mines of immense extent are worked, crushing all the quartz mined, and yielding in many cases very large profits. The stamps used are heavier than ours, from 6 to over 8 cwt. each, crushing from 2 to 4 tons per stamp in 24 hours, the results being much in favour of the heavier stamp. To overcome the difficulty in amalgamating so large a discharge of sand and water, screens are put on the stamper boxes, both front and back, with necessary appliances, thus giving double the discharge capacity used in our mills. After the screens come the copper plates, discharging into siphon boxes, then box sluices with rifles, then blanket sluices, then stir tubs and bubbles for saving pyrites, and last of all the waste tub,—this soon filling up, the sand forms a screen that retains any mercury that may have escaped thus far. There is one strange fact connected with the use of this tub, that, after being in use without cleaning up for from 6 to 9 months, nuggets of pure gold have been found in it; the mass after a time collecting a large quantity of mercury charged with fine gold. From some chemical or other cause crystallization takes place, and the nuggets are formed.

Their machinery for alluvial mining is also very complete, both for the common sluicing (picking and shovelling the dirt into the sluices), and for hydraulic mining, by which the earth is broken down and sluiced away without the use of either pick or shovel. Under favourable circumstances, by the for-

mer method a man will sluice 10 or 12 tons per day, and by the latter 50 tons; and the yield per ton that will pay is so exceedingly small, even where the cost of water is more than all the other expenses combined, induces me firmly to believe that there are many places in this province in which alluvial mining could be profitably prosecuted.

In Tangier nuggets from 27 oz. (23 oz. gold) down have been found, and a large amount of earth was hauled and put through the crusher. At Indian Path a quantity has been crushed (see Mr. Wadelow's letter, pages 12, 13). At Isaac's Harbor, on and around Hurricane Island, the soil is known to be very rich. I this summer witnessed the washing of a number of pansfull; in every one of them a number of sights were obtained. At Gay's River as high as an ounce per man a day was obtained. At the Nine-Mile River, near Renfrew, a layer of auriferous sand covering a large area is known to exist; and there is no doubt that in all of the districts there are many places in which the cost of prospecting may be largely reduced, if not altogether covered by the yield,—properly made and equipped sluices, a portable engine and pump being the principle requisites to carry on the operations almost anywhere in a country as well watered as this. I would also suggest to prospectors in new districts the use of the above, with a portable battery of say two or four stamps, such as could be easily carried from place to place in the winter; then if one locality proved a failure, the machinery could be removed without much loss; if a success the means would be at hand to extract and save the gold. This arrangement would do away with the necessity of putting up permanent crushers at large cost when the rock will not pay, as has too often been the case.

A work on mining in the colony of Victoria, by R. Brough Smyth, the Secretary of Mines for that colony, has recently been published, which I cannot too strongly recommend to the notice of those engaged in mining. It gives a complete description of the different modes of mining, with plans of sluices, buddels, crushers, &c., by the operators and builders; and supplies a want in this province that I have not seen met in any other work. It is an extensive work, and contains a

large number of plates and plans, and I hope to see it in the hands of all our miners, as I am confident they would be largely benefitted thereby.

## COAL MINES.

Although the coal mines are still in a depressed state, I am happy to report that the quality raised and sold during the year is considerably in advance of last year.

No new mines have been opened.

But little coal has been raised in Cumberland county, although much is expected on the opening of the Intercolonial railway.

In Pictou county the Albion, Acadia and Drummond are the principal mines in operation who have done a fair business.

In Cape Breton county the Block House, Gowrie, Little Glace Bay, Caledonia, International, Victoria, Lingan, and Sydney, are the principal mines in operation. A railway is commenced between the International mine, near Bridgeport, and Sydney harbour. This road, if extended to Louisburg, would traverse, through a large portion of its extent, a valuable coal region; and a large number of mines, now of little value (from the want of harbours) could be successfully worked. The work performed in and results obtained from the other mines in the Province have been of a limited character.

The report of the Inspector of Mines, with the usual tables, is hereby appended.

I have the honor to be,

Sir,

Your obedient servant,

ROBERT ROBERTSON.

The Hon. the PROVINCIAL SECRETARY.

## INSPECTOR'S REPORT.

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DEPARTMENT OF MINES,

Halifax, Jan. 18, 1870.

SIR,—

The mining operations in the Province during the past year present few new features of importance. Most of the coal mines have been worked; the production of each has, however, varied; in some it exceeds, and in others it is less than that of the preceding year. In the aggregate there is an increase in the sale of coal over that year of 58,170 $\frac{1}{4}$  tons; and whilst a large proportion of this is due to the extended operations of the new mines, it is gratifying to note that some of the older establishments have exceeded their last year's sales and contributed to this increase. The general yield is still, however, far below the capabilities of production, and it is to be regretted that the state of the trade still offers so little scope for such an extension of the operations as by their present development most of the mines are prepared for.

In the county of

### CUMBERLAND

the only mines that have been in operation are the Joggins, the Macan, the New York and Acadia, and the one opened by Mr. Black at Springhill. In the former of these, the

#### JOGGINS,

the two seams usually worked have been mined, the operations in the main seam being confined to the same district in the mine in which they were carried on last year, *i. e.*, the upper level between the main level and the crop of the seam. In the Hard Scrabble seam the level or adit has been extended to the east, and working places won out in the usual manner. An expenditure is returned as follows:

Adits and levels .....	\$240
Drains and surface works .....	180
Machinery .....	240
Houses .....	200
Total .....	<hr/> \$860

## MACAN.

The operations at this colliery have been on a very small scale, and have been altogether in the part of the mine opened last year at the western extremity of the old workings. At a depth of about 100 feet from the crop a level has been driven 437 feet, out of which the coal is worked, on the long wall system, a distance of 70 feet to the rise. Nothing has been done in the slope formerly worked, the workings in connection with which are filled with water. The returns show an expenditure on

Machinery .....	\$30 40
Houses .....	5 00
	<hr/> \$35 40

## NEW YORK AND ACADIA.

At this mine the workings have been extended on each side of the slope ; the east level being now distant from it 300 feet, and the west level 400 feet. On the west side of the slope a shaft has recently been sunk and connected with the level to assist the ventilation, for which purpose it is used as a down-cast. When making the connection between the shaft and the drift driven from the level to the rise, a slight error in the position of the shaft led to the discovery of another bed of coal underlying the seam at present worked, ten feet.

This bed is five feet thick, including a portion of impure coal next the top ; the lower part is of the following section :

	feet. ins.
Coal .....	0 11
Hard band .....	0 4½
Coal .....	1 5
Slaty band .....	0 1½
Coal .....	0 11
Total .....	<hr/> 3 9

A drift has been driven into this seam out of the west level, a short distance from the slope, with a view to working it, the coal being of good quality. The expenditure during the year is stated to be as follows :—

Adits and levels.....	\$819 50
Surface works, &c.....	235 00
Machinery.....	5 75
	<hr/>
	\$1060 25

#### SPRING HILL.

The operations in this locality have been chiefly of an exploratory character. On the seam opened last year by Mr. Black, levels have been driven a short distance from one of the shafts, and coal has been worked for landsale purposes. Eastward from the shaft explorations have for some time been carried on for the purpose of proving the position of the beds of coal, before fixing on a site on which to establish works of a substantial and extensive character. These explorations have been made both on the property of Mr. Black, and also on the areas belonging to the Hon. A. Macfarlane; and although not yet completed, they have proved an uninterrupted range of the seams for some distance in an easterly direction. The openings have been made both on the crop of the seam in which mining has been carried on, and on that of one to the north of it, the thickness of which is 13 feet 3 inches. Other seams have also been struck; the coal in all of them being of excellent quality. The subjoined analysis of the coal from the 11 ft. 3 in. seam, the one at present worked, was recently made by Mr. Hartley, of the geological survey of Canada, under the direction of Sir W. Logan. It is evidently of a very superior class.

Volatile matters, water included.....	35.39
Fixed carbon.....	60.46
Ash.....	4.15
	<hr/>
	100.00
Coke, firm and compact.....	64.60
Sulphur in coal.....	0.225

The expenditure returned is, for

Prospecting .....	\$807 34
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Prospecting to a considerable extent has also been carried on during the year on the arrears of Messrs. Livesey and Thompson, which, when completed, will be an important addition to the knowledge of this coal field. A joint expenditure is returned of \$1711.22. The extent and quality of the beds of coal in this district, irrespective of their very advantageous position as regards the facility of shipment by means of the Intercolonial railway, cannot but make it one of the most important in the Province; and operations, therefore, of an extensive character, may be anticipated on the completion of that portion of the line which will connect the mines with the Cumberland Basin.

#### PICTOU COUNTY.

The sale of coal from this county exceeds that of last year 53,360 tons. This increase is due to the extended operations of the Acadia and Intercolonial Cos., from whose mines, and those belonging to the General Mining Association, nearly the entire produce of coal in this county has been taken.

At the

#### ALBION MINES

the operations have been carried on in the Main and Deep seams, and have consisted of a removal of such portions of the old pillars as could with safety be worked. As the sales have been nearly altogether from this source of supply, it is gratifying to note the absence of any of those serious casualties with which operations of this character are so frequently accompanied. I regret, however, to have to report the occurrence of an accident on the 27th of March, which threatened at one time to be of serious consequence, but which fortunately has been attended only with a delay in opening out the Main seam in the new pit.

The coal was being mined in the usual way, gunpowder being used to blast it. On the occasion referred to a quantity of gas, which is supposed to have come off at a "lype" or fissure in the coal, was ignited, and in spite of every effort to extinguish it the flames set fire to the coal, and in a few minutes extended to the shaft. The workmen and boys were

fortunately got out without loss of life; their escape was, however, almost miraculous. Efforts were at once made to exclude the air, and other means were adopted to extinguish the fire. On opening the shaft, two months afterward, the timbering near the bottom was found to be so injured that it would have to be almost entirely replaced before operations could be resumed. This has been done, and the opening of the seam is now being proceeded with, the precaution being taken to use only safety lamps in the mine; the use of powder being also discontinued.

The powerful pumping engine in connection with these new works has during the year been completed, and the other arrangements necessary to the production of a large quantity of coal are also well advanced.

In addition to these preparations, a steam engine is in course of erection in the main seam at the "Forster" pit for the purpose of hauling the coal from the dip, in which direction a pair of drifts are being driven with a view to an extensive opening of the seam in that district of the mines. This engine will in a short time be completed, and the productive powers of the colliery will be thereby largely increased.

The expenditure, as per returns, is as follows:—

Surface work.....	\$2014 04
Machinery.....	4367 92
Engine and other houses.....	7150 52
Total.....	\$13532 48

#### ACADIA.

At the Acadia mines the operations have, with the exception of a few tons worked in the McGregor seam in the early part of the year, been confined to the seam opened on the Carmichael area, on which the principal mining establishment is situated. The workings on this seam are conducted in a systematic manner, and the operations generally have been on a scale that places the mine in a first class position as regards productive capacity. The levels on each side of the slope have been driven nearly to the boundary, and the working places, which are yet some distance therefrom, are carried on

in the manner formerly described. Preparations are being made for an extension of the slopes to the dip, by which additional working places will be provided, and the yield of coal still further increased.

An expenditure is given in the returns as follows :

Surface works .....	\$333 48
Machinery .....	224 96
Houses .....	766 62
Railway .....	2546 90
Wharf .....	1383 05
Total .....	<hr/> \$5255 01

#### INTERCOLONIAL.

This colliery has, during the year, been brought into that position, with respect to the yield of coal, for which the extensive arrangements referred to last year were a preparation.

The slopes have been driven further to the dip ; they are now 930 feet in length. Out of these slopes three levels, 100 yards apart in the slopes, have been driven on each side, and working places won out of them.

The faces of the uppermost of the levels are now about 500 feet from the slopes ; the second levels have been driven about the same distance, and the lowest 60 yards on each side. Room has thus been provided for the employment of a number of workmen, and the yield of coal from this colliery may be expected to steadily increase.

The returns show an expenditure on

Adits and levels .....	\$278 00
Surface works .....	362 42
Machinery .....	2288 31
Houses .....	2331 79
Total .....	<hr/> \$5260 52

With the exception of the Nova Scotia colliery, the preceding are the only mines that have been in operation in this section of the Pictou coal field during the year. At the

#### NOVA SCOTIA

mine, although only a few tons of coal have been raised, extensive preparations are now being made to bring this col-

liery into a more effective condition than has for some time prevailed. A lengthy and commodious wharf has been nearly completed at Middle River; a considerable portion of the railway between the wharf and the mines has been constructed; 10 double houses, equal to 20 tenements, have been erected, and a double cylinder horizontal steam engine, of 40 horse power, has been placed in position for hauling the coal up the slope. Nothing has yet been done in the mine, but it is purposed to commence operations as soon as the engine can be applied.

The expenditure is stated in the returns to be as follows:

Surface works .....	\$32320 12
Machinery .....	8301 43
Houses .....	5768 48
Total.....	\$46390 03

The only other mine in this county at which anything has been done is the

#### MERIGOMISH.

A slope has been driven in a seam overlying the one opened last year by the Pictou Mining Co. This slope is now 180 feet to the dip, and out of it at that distance a few working places have been turned.

At none of the other mines in this locality has regular mining been carried on. The Marsh colliery suspended operations early in the year; on the McKay area nothing has been done, and the Messrs. McBain have only taken out 378 tons of coal. Their returns, however, show an expenditure as follows :

Adits and levels.....	\$236 37
Surface work.....	397 51
Prospecting .....	392 37½
Total.....	\$1026 25½

#### ANTIGONISH.

At the Messrs. McKinnon and Chisholm's mine in this county, the operations have not yet proceeded much beyond

the prospective stage; the presence of some faults near the crop of the seam having impeded their progress. A fresh opening is, however, being made, and other steps have been taken to put the mine in a working position. The expenditure is stated to be on

Adits and levels.....	\$436
Houses .....	60
Prospecting .....	94
Total.....	\$590

#### CAPE BRETON.

Although the sale of coal in Cape Breton exceeds that of last year, few of the mines have been in that active operation for which by their general arrangements they are fitted.

In Inverness and Victoria counties the only mining operations have been at the Chimney Corner, Black Rock, and New Campbellton mines. The Port Hood colliery has remained in the same condition as reported last year. The explorations by Mr. Lawson were discontinued in the early part of the year, and no further steps have been taken to open the seams in that locality.

Considerable progress has been made in preparing the Chimney Corner mine for more effective operations. A slope has been driven from the surface in one of the seams, and a steam engine has been erected for the purpose of hauling and pumping. The other arrangements necessary to place the mine in working order are also nearly completed. The expenditure is returned as follows:

Slopes .....	\$1334 00
Adits and levels.....	625 00
Surface works.....	4993 80
Machinery.....	1870 00
Houses.....	4140 00
Prospecting .....	120 00
Wharf .....	500 00
	-----
	\$13582 80

In the

NEW CAMPBELLTON

colliery the tunnel seams have been worked for a short time ; the operations, however, were of so limited an extent that the position of the workings is very little altered.

A similar inaction has prevailed at the Matheson and Collins mines. At each of them a few tons only of coal have been raised. The

SYDNEY MINES

have as usual maintained their position as one of the most extensive mining establishments in the Province. The only seam that has been worked during the year is the Main seam, in which the operations are carried on with much regularity. In no respect do they present any change of importance. The submarine workings are being successfully continued, and have hitherto presented no difficulty in prosecuting them in the ordinary manner. They now extend over an area of nearly 12 acres on the northern side of Cranberry Head, and of 22 acres under Lloyd's Cove.

Considerable progress has been made at the new works ; the massive stone building required for the powerful pumping engine has been completed, and the erection of the engine is being proceeded with. The hoisting engine has also been placed in position, and the other necessary arrangements are being made for getting the water out of the shafts, and resuming the sinking operations. The returns show an expenditure as follows :

Surface works.....	\$4685 30
Machinery. ....	6135 60
Total ..... .	\$10820 90

VICTORIA.

The commencement of this colliery in 1867 was attended with much interest in consequence of the peculiar position of the areas as compared with other mining operations. The areas being entirely submarine, it was the first attempt to work coal so situated by means of a slope from the crop.

The operations, however, were not impeded by any difficulty of importance, and the practicability of mining under such circumstances was fairly established. The slopes have been driven 300 feet to the dip, levels have been won out of them, and working places provided in the usual manner. During the year the surface erections have been considerably extended, a larger pumping engine has been put into operation, and another hanling engine applied to the east slope. The arrangements for screening the coal have also been nearly completed, and in other respects the colliery is rapidly assuming an important aspect. In the mine, however, I regret to say the operations have not been conducted with that care which the circumstances of position required; a larger proportion of coal than was warranted by the thickness of the strata between the bed of the sea and the seam has been injudiciously removed, and although no immediate danger may be apprehended, an extension of the workings to the dip would, I consider, be attended with risk. I felt it, therefore, to be my duty to call attention to the position of the mine, and to recommend such steps to be taken as will tend to the security of the mine and the safety of those employed in it.

Meantime the railway to connect the colliery with the shipping place at Sydney South Bar is being constructed, and it will probably be in operation in a few months. From the quality of the coal at this mine, and the energy of the proprietors, it may be safely augured that extensive operations will, on the completion of the works, be steadily pursued. The expenditure is stated in the returns to be as follows:

Shafts and slopes.....	\$1267 00
Adits and levels .....	430 00
Surface works .....	695 00
Machinery .....	1350 00
Houses .....	5760 00
Railway .....	8000 00
 Total.....	 \$17502 00

#### LINGAN.

The operations at this colliery have been of the ordinary character; the workings have been conducted in the usual

manner, and nothing has occurred in connection with them to require especial remark. The sale of coal, it will be observed, is in excess of last year, but it is still far beneath the capabilities of this establishment.

The erection of the steam engine at the Barasois was completed early in the year, and operations have since been regularly carried on in the seam. An additional slope is in course of driving for the more efficient ventilation of the workings as they are extended, and other arrangements are in preparation for working the mine on a larger scale. The following is the expenditure as per returns :

Adits and levels .....	\$1205 87
Drains, &c. ....	91 00
Machinery .....	737 82
Houses .....	327 05
Wharves, &c. ....	443 00
Total.....	\$2804 74

#### INTERNATIONAL.

This colliery has been worked only a few months of the year. The workings are in consequence very little altered in extent. The disadvantage of an uncertain shipping place, from which this mine has for some time suffered, is in course of removal by the construction of a railway from the mine to Sydney. This is being very vigorously carried on, and there is every probability that it will be completed in the course of the present year; the position of this mine will then be very materially altered, and its productive capacity will have ample room for extension. The expenditure is as follows :

Adits and levels .....	\$76 30
Surface works .....	198 15
Machinery .....	65 00
Total.....	\$339 45

#### CALEDONIA.

The sale of coal at this colliery has much exceeded that of last year. It is still, however, far below the means of supply provided by the general arrangements. The workings have

been extended chiefly to the rise, and are in the usual form. A shaft has been sunk to the seam a short distance from the crop with which the workings are now connected; and the ventilation of the mine is by means of a furnace at the bottom of this shaft, more steadily maintained. The expenditure, as stated in the returns is, on

Shafts. ....	\$ 742 69
Houses, &c.....	133 05
Prospecting.....	18 60
	-----
	\$ 894 34

#### LITTLE GLACE BAY.

It is to be regretted that the capabilities of this extensive colliery should still continue dormant. The operations during the year have been very limited in extent. Mining has been carried on in both the Hub and the Harbor seams in the usual manner. The area of the workings is, however, very little increased in size. The returns show an expenditure as follows:

Adits and levels .....	\$634 97
Houses .....	677 77
Wharves .....	1271 38
	-----
Total.....	\$2584 12

#### CLYDE.

At this colliery mining has been carried on during the greater part of the year, the operations having consisted of an extension of the upper east level, which is now about 200 yards from the slope, and of the usual working places in connection with it. In the lower level nothing has been done, and the workings are still filled with water. The expenditure, as per the returns, is

Adits and levels .....	\$48 57
Surface works.....	3372 18
	-----
Total.....	\$3420 75

## SCHOONER POND.

Mining was resumed at this colliery in July last, and a few tons of coal were taken out. The difficulty of shipment, however, prevented a continuance of the operations, and they are again suspended. The returns show an expenditure on

Adits and levels.....	\$40 00
Wharf, &c. .....	317 67
Total.....	\$357 67

## BLOCK HOUSE.

This mine has this year resumed the position which, as regards its capabilities of production, it had, until last year, held. Mining has been vigorously carried on, and the sale of coal considerably exceeds that of last year. The extension of the workings in the mine is in correspondence with this increased yield of coal. They present, however, no change of any moment. The operations are carried on in a systematic manner. An expenditure is returned as follows:

Surface work, &c.....	\$2656 00
Houses .....	1200 00
Total.....	\$3856 00

## GOWRIE.

The operations at this colliery have been of the usual active character; mining is steadily pursued, and the extent of workings considerably increased. These have been in the districts of the mine generally worked; the east level being now about 500 yards from the shaft, and the west level upwards of 900 yards. The working places in connection with these levels are driven to the rise in a regular manner and in the usual form. The seam does not vary much in size, nor is there any change in the mine that need be noted. Some prospecting operations have been begun to the west of the present openings, on the northern crop of the beds; a seam of coal has been exposed, with other results of a satisfactory character. The following is stated in the returns to be the expenditure during the year:

Adits and levels.....	\$400 00
Shafts .....	50 00
Surface works.....	150 00
Machinery.....	250 00
Houses .....	550 00
Wharf .....	150 00
Prospecting .....	500 00
Breakwater.....	1290 00
Total.....	\$3370 00

#### SOUTH HEAD.

This mine has been inoperative the whole of the year. The temporary wharf erected for shipping the coal was destroyed by a gale in the early part of the year, and no attempt has been made to renew it; nor has any mining been done.

At none of the recently opened mines have any operations of moment been begun or carried on. A few tons of coal have been taken out of the Gardener colliery of Messrs. Brookman and Moseley, and by Mr. Lorway out of his area; but nothing has been done towards the equipment of the mines in a manner to enable larger quantities to be worked.

Several of the areas on which these seams have been opened are some distance from a shipping place; and this position has doubtless hitherto tended to retard their development. This impediment, it is hoped, however, is in course of removal, and a means of shipment at Sydney will, it is expected, in a short time be provided. The construction of a railway between Glace Bay and that port cannot fail to materially influence the mining operations in its locality, or to impart to some extent a renewed vigor to the trade.

#### RICHMOND COUNTY.

The mines in this county are in the same condition as reported last year. At neither the Sea Coal Bay nor the Richmond collieries has there been any mining or any movement with a view to the resumption of work.

## GOLD MINES.

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Mining has been pursued in the different localities during the year with that irregularity in the operations which has hitherto characterised this branch of industry. In some districts they have been resumed with satisfactory results, and in others there has been an entire suspension of those in hand.

### OVENS.

Almost the only mining carried on in this district has been by Messrs. McKay and Ross, whose operations have been in the Bent and other lodes formerly opened on the McCulloch areas. The lodes have been stoped to various depths in the usual manner.

At Indian Path the Messrs. Waddelows' operations have been chiefly of a prospective character. Several lodes have been exposed, but no regular mining has been carried on.

At

### GOLD RIVER,

near Chester, extensive explorations have been carried on during the year by Mr. Michel, by whom I have been furnished with a report of their extent and results. Upwards of 2000 feet of trenching has been dug, and 10 shafts have been sunk, to depths varying from 15 to 30 feet, and tunnels driven between them. The following extract from his report is a statement of the result of the operations:

"1st. The discovery of five leads, of which four appear to be the continuation of those already known on the banks of Gold river in other properties. These leads, which measure from 2 to 5 inches, all contain visible gold, and often in notable quantity. My mechanical assays, which have been made on nearly 500 lbs. of quartz, powdered and washed with care, or amalgamated, as also the assays of Dr. Dana Hayes, of specimens in which no gold was visible, give to these leads a mean yield of \$20 per ton.

"2nd. The encounter, either at the surface of the ground, or

buried at the depth of several feet, or numerous boulders of quartz, more or less large, in the most of which the gold is visible. Several of these boulders, when powdered and washed, are very rich in gold. The principal ore, coming from a lead not yet found, of 9 to 12 inches thickness, contains several dollars worth of gold in sights.

"3rd. The washing, by rocker of the gravel coming from the neighborhood of the leads, or from the bank of Gold river, has had the result of separating a quantity, more or less considerable, of specks of gold. This exploration will probably be continued next year. The leads appear to grow richer toward the west."

#### RENFREW.

Mining in this district has not been to the usual extent, the operations, both of the Ophir and Colonial Cos., having been on a somewhat reduced scale. On the North lode the Ophir Co. have sunk their No. 5 shaft 130 feet further, but have not continued the stoping beyond the depth at which it stood at the end of last year. The portion of the lode left next the surface has, however, been entirely removed, and operations on this lode are at present totally suspended. The No. 5 shaft on the south lode has also been sunk further; it is now 342 feet deep. On the west side of this shaft the lode has been stoped 145 feet in length, and connected with a shaft on the Colonial Co.'s property. This shaft the Ophir Co. have purchased, and sunk to a depth of 220 feet. On the McClure lode the No. 2 shaft has been sunk 92 feet further, and the stoping continued in the usual way, 115 feet in length on the east side of the shaft, and 255 feet on the west. Little has been done during the year on the Brook lode, and operations on it have for some time been discontinued.

The Colonial Co. continued to mine the north lode until the stoppage of the Ophir Co.'s operations on that lode, when they were obliged, in consequence of the influx of water, to cease working. The shafts have been sunk deeper, No. 1 being now 200 feet, and the lode has been stoped a distance of 100 feet to the west of that shaft.

On the McLeod lode another shaft has been sunk, the depth of which, and of the one begun last year, is 100 feet. At a depth of 40 feet tunnels were driven east and west, and th

lode stoped to a height of 15 feet; it is now being worked, by underhand stoping, a distance of 100 feet. South of the McLeod lode two shafts have been sunk on a lode, the thickness of which is 8 inches. One of these shafts is 30 feet deep, and the other 50 feet. In the latter the lode has been stoped to the west 60 feet. At a depth of 35 feet a tunnel has been driven to the east 25 feet, and stoping begun.

In the Free claim operations have been carried on by Mr. W. Gay. The lodes have been worked in the usual manner, and with satisfactory results.

### OLDHAM.

The operations in this district have recently been extended by the reöpening of some of the mines which have not been worked for some time. During the greater part of the year the principal mining has been carried on by the Sterling Co. This Co. now own the property on which Mr. Shaffer worked the Barrel lode last year, and have continued operations on it. It has been worked by underhand stoping to a depth of 230 feet in the main shaft, and about 180 feet in length. On the east side of this shaft the position of the lode is altered by a fault, by which it appears to be thrown to the south. A cross tunnel is in course of driving in this direction, at a depth of 108 feet in the shaft, and 36 feet on the east of it. This tunnel is now 140 feet in length; it has passed through several lodes, which are, however, irregular in position. A short distance to the north of these operations the Co. have commenced to work the Frankfort lode, on which nothing has been done for some time. It was formerly mined to a depth of 40 feet, and about 150 feet in length. The shafts have been repaired, and the lode is being stoped along nearly the same distance. A steam engine is about to be erected in a position to allow of its being applied to hoist and pump at both these mines. The same Co. have also begun to work the Wallace lode, formerly opened on the English Co.'s property. It had been mined to a depth of 70 feet and 150 feet in length, and nearly the same extent of stoping is being carried down. On the Ritchie lode also some mining was done during the year by

this Co., one of the old shafts on it having been sunk 20 feet further. Operations are, however, at present suspended.

Operations have within the last three months been resumed on the same lode in the adjoining property to the west by Mr. Coxetter, who has thoroughly repaired the shafts formerly sunk on it. The lode had been stoped from the surface to a depth of 75 feet. Since Mr. Coxetter commenced the central shaft has been sunk 75 feet further, and a length of stoping of about 150 feet has been worked.

East of the Sterling Co.'s operations, on the Barrel lode, a similarly formed lode has been mined by Mr. Shaffer, Mr. Macdonald and others. By the former it has been worked to a depth of 30 feet, and about 40 feet in length. On the adjoining area to the south Mr. Macdonald has worked, by underhand stoping from the surface, to a depth of 80 feet, and about the same distance in length. Operations on a small scale have also been carried on in a lode of the same character further west.

The lodes in this part of the "diggings" bend round from an easterly to a northerly strike, and are on the south side and east end of an anticlinal, having a resemblance to that at Waverley, which Mr. Burkner's operations have so well developed.

Explorations in various parts of the district have been made by Messrs. Bunker and others, but no regular mining is being carried on. The Messrs. Fraser and McBain continued their operations for a short time on the lode reopened by them last year; they are now, however, entirely suspended.

Considerably to the west of these last Mr. Donaldson has recently opened a lode on which a shaft is being sunk.

## WAVERLEY.

This district has not yet resumed that position which it formerly occupied, and the operations are still on a small scale in comparison with their former extent. The Boston and Nova Scotia Co. and the Taylor Co., now united and termed the American Hill Co., have continued to mine the lodes formerly worked by each Co. There has not, however, been any

extension of the works; and the mining operations have consisted principally of a stripping of the lodes at various parts of the mines where they had been left in the earlier operations.

The Waverley Co. have also worked to a small extent the North Taylor lode, some stoping having been done on the west side of the east shaft. The mining generally has been of a similar character to that described, the position of the mine being unaltered. These mines are situated on the east side of Muddy pond. On the west side, adjoining the extensive workings of Messrs. DeWolf and Co., the North American Co. have sunk a shaft on the North Tudor lode, between two others on the same property. This shaft is now 80 feet deep, and the lode has been stoped from about 6 feet from the top of the rock to this depth. It is being mined by underhand stoping, an extent of 30 feet being worked on each side of the shaft.

Nothing has been done during the year on the lodes formerly worked by Messrs. DeWolf & Co., and their operations have been confined to prospecting on different parts of their property. Lodes have been partially opened of a more or less promising character, but no regular mining has yet been begun. During the last month they have, however, resumed the working of the Barrel lodes. A short distance west of his workings on the Tudor lode, Mr. Burkner has sunk a series of shafts on a lode ranging in a somewhat parallel direction with the South or Nigger lode, formerly worked by him. Five shafts are being sunk on this lode, their present depth being about 50 feet, and the lode is taken out by underhand stoping the entire range of the shafts, with the exception of a bulkhead or divisional piece, 4 feet thick, which is left in the centre of the space between each shaft. The lode varies in thickness from 12 to 5 inches; it dips to the north west. The trending of the strike of this lode towards the north and east has been followed from the shafts to within a few feet of the old workings on the Tudor lode, and its identification with that lode been established; and the construction assigned by Professor Hind to this part of the Waverley district confirmed.

Mr. Burkner has also recently resumed operations on the south lode, three shafts being in course of sinking. A shaft

has also been sunk 40 feet in connection with some prospecting operations.

### MONTAGU.

In this district the operations have been such as will tend to revive the hopes which were entertained regarding it. Not only has mining been resumed on the property formerly held by the Albion Co., but other lodes have been opened, and are being worked with a promise of good results.

On the Montagu Co.'s property Messrs. Leckie & Co., the present proprietors, continued to mine the Belt lode during the first two months of the year. In consequence, however, of the inadequacy of the machinery to perform the work required, mining was suspended, and has not since been resumed.

Other parts of the property were then prospected, and lodes discovered, on which operations were begun and are being continued. Two lodes have been opened near the Werner lode, one of them being distant from it to the north 60 feet. On this lode, the thickness of which is 4 inches, five shafts have been sunk, varying in depth from 25 to 55 feet; and the lode has been stoped to the surface from these depths a distance of upwards of 300 feet. On the adjoining lode to the north, a thickness of rock of 11 feet separating them, two shafts have been sunk, the distance between them being 200 feet. The east shaft is now 50 feet deep, and the lode has been stoped to the surface from that depth, and 70 feet in length. The west shaft is 22 feet deep, and a length of stoping is carried down of 45 feet. The size of this lode is 7 inches.

Two shafts have also been sunk on the Werner lode, one of which is 70 feet deep, and the other 35 feet. The lode has been stoped to the surface from these depths, and taken out by open cutting 100 feet to the east of the east shaft.

A considerable extension of these works is projected. A new crushing mill of 15 stamps is in course of erection; and a more powerful engine, with hoisting and pumping machinery, is about to be placed on the Belt lode.

The re-opening of the Albion Co.'s mines by the Messrs.

Lawson is an interesting circumstance in this locality. The lode worked is the Belt, and the property adjoins that of Messrs. Leckie & Co. on the east. There are 9 shafts on the lode, the deepest of which is now 120 feet. From this shaft the lode is worked by underhand stoping about 220 feet to the west and 100 feet to the east, the shafts at the extremities being about 50 feet deep. The lode has been taken out from these depths to the surface. At the central and deepest shaft a steam engine, with hoisting and pumping gear, of a simple and effective character, is applied; and the operations generally appear to be conducted with skill and economy.

Prospecting operations have been carried on at different periods during the year, in various parts of the locality, by Messrs. DeWolf, Temple & Salter, Jennings and others.

### TANGIER.

The steadiness with which mining has been carried on by the Strawberry Hill Co. is a cheering feature in the operations in this district. This Co. have continued to mine the Forrest lode, on which two additional shafts have been sunk during the year, to the east of those in use last year. These shafts are 65 and 35 feet deep, and the lode has been stoped nearly to the surface from these depths, a length of underhand stoping of 40 feet being carried down in each shaft.

Between the next two shafts to the west, a tunnel has been driven at a depth of 100 feet, and the lode has been stoped from it to a height of 25 feet. On the west side of this tunnel the lode has been mined by underhand stoping to a depth of 150 feet from the surface, and 170 feet in length.

About 70 feet north of the Forrest lode, and near the present eastern extremity of the workings on that lode, another lode has been opened by three shafts to a depth of 30 feet. This lode is 2 feet thick.

On the Wallace lode the tunnel is now 300 feet in length, and is being continued further.

Operations have, during the last six months, been resumed on the Leary and Nigger lodes by the Burlington Co. On the Leary lode the principal work done has been the sinking of

the west shaft a few feet further, and the preparation of the mine for regular underhand stoping, which is now being carried on. Tunnels have been driven 25 feet on each side of the shaft adjoining on the east of the westernmost one on the range, from a depth of 125 feet; and the lode has been stoped from the surface on the east side of the west shaft to a depth of 30 feet. It is also being stoped to the west above the west tunnel, at a depth of 50 feet.

On the Nigger lode one of the old shafts has been sunk 30 feet deeper, and a tunnel has been driven to the west 164 feet. No stoping has yet been commenced. East of this shaft the lode has been stoped a height of 15 feet and about 90 feet in length, and the work connected with the former operations. Other lodes have been opened by this Co. to the south of the Leary. On one of these, about 25 feet from it, a shaft has been sunk 45 feet, and the lode been stoped 25 feet on each side to a height of 12 feet. The thickness of this lode is 9 inches.

A shaft has also been sunk 47 feet on a lode further south, at which depth a tunnel has been driven 100 feet on each side; but no stoping has yet been begun. This lode is 7 inches thick.

Prospecting operations have been continued during the year by Messrs. Barton and Estey, a drift having been driven on a portion of their property 200 feet across the course of the lodes. Several lodes were cut of a promising appearance. Some of them have been partially worked.

At Mooseland mining has been almost entirely suspended. Recently, however, some prospecting on the property of the Beneficiary Co. resulted in the finding of a lode of very rich quartz. There are other lodes in this locality which seem to be worth attention. On some of them operations are about to be commenced, and mining of a more steady character than has yet prevailed may be anticipated.

#### SHERBROOKE.

The mining operations in this important district have not been to that extent which might have been expected from the

additional mines that were opened last year. By many of the new companies very little mining has been done. The other establishments have, however, maintained their position.

The Wellington Co. have continued to mine the Cumminger lode. Their west shaft is now 330 feet deep, and the stoping has been carried 160 feet to the west. The operations on the lode have been principally in and near this shaft. The shafts on the Dewar lode have also been sunk deeper, and are now from 75 to 50 feet, the deepest being at the west end of the workings. The lodes in these mines are taken out by underhand stoping, and the operations are carried on in a very regular manner. Little has been done by this Co. on the Hayden and Derby lode. A cross tunnel is being driven out of it to the south, from a depth in the shaft of about 75 feet; and out of a lode lying 4 feet to the north of the Hayden lode a cross tunnel has been driven 150 feet to the north. This tunnel is situated about 50 feet to the east of the shaft. The south tunnel only is at present worked. Adjoining the Wellington Co.'s operations, on the Dewar lode, the Rockville Co. have two shafts on that lode, each of which is 90 feet deep. The lode is stoped to the surface from this depth, and it is now being worked by underhand stoping a length of 70 feet.

On the New York and Sherbrooke Co.'s property the mining has been chiefly of a prospective character. Some lodes have been opened to the south of that formerly worked by this Co., on which operations have been carried on to a small extent, consisting principally of open cutting. Other lodes have recently been opened to the north of the old lode, which are likely to be very productive.

The Delta Co. have only partially worked the lodes opened last year. The two shafts have been sunk deeper, and are now 60 feet and 73 feet respectively, the former having been sunk 30 feet last year. Out of this shaft, at a depth of 56 feet, a tunnel has been driven to the north 53 feet, and a little stoping done. In the other shaft, at a depth of 68 feet, a cross tunnel has also been driven 33 feet to the north. Operations in both places have been discontinued for some time.

The Crescent Co. have done very little since February last.

The northernmost shaft has been sunk to a depth of 50 feet, but no tunnelling or stoping has been commenced. Out of the next shaft to the south, and at a depth of 35 feet, a cross tunnel has been driven to the south 6 feet into a small lode. And the third shaft, 120 feet to the east, has reached a depth of 47 feet. Considerably to the west of these properties the Stanley Co. have opened some lodes, three of which dip slightly to the south, and one to the north. The northernmost of the three is 8 inches thick, with 18 inches of slate on each side. A shaft has been sunk on it to a depth of 45 feet. South of this lode 50 feet, a shaft has also been sunk 50 feet on a lode 5 inches thick, with 12 inches of slate on the north side; and further south 150 feet a lode 12 inches thick has been worked in several places by open cutting. The other lode, the thickness of which is 2 feet, is to the north of the 8-inch lode. A shaft has been sunk on it 40 feet. No operations are at present carried on at any of these places.

The Dominion Co. have continued to work the Palmerston lode, which appears to be unaltered in any respect. A width of about 18 feet, and a height of from 25 to 30 feet, is being mined in an easterly direction from the bottom of the shaft, the depth of which is 128 feet. The face of the work is about 130 feet from the shaft.

West of the Dominion shafts the Palmerston lode has been mined by the Palmerston Co., the operations consisting of the removal of the upper portion of the lode which was left next the surface. This has been entirely removed up to the western limit. It is now being worked towards the eastern boundary.

Nothing has been done on the North Palmerston lode.

The Metropolitan Co. have also taken out the Palmerston lode to the surface over the extent of their areas. The other operations of this Co. have been on the Archibald and Hewitt lodes. In the former of these the lode has been stoped 25 feet to the east, and to within 8 or 10 feet of the surface, from a depth of 35 feet. In the Hewitt lode the only mining done has been the driving of the cross tunnel 80 feet to the south.

On the Kingston and Sherbrooke Co.'s property nothing has been done beyond the sinking of the two shafts 25 feet further. They are now from 70 to 75 feet deep.

The Meridian Co.'s operations have been on the Stryker lode, which was cut in a cross tunnel to the north out of the Sears lode, from which it is distant 30 feet. Tunnels have been driven east and west in this lode about 30 feet, but no stoping has been done.

The Chicago Co. have two shafts on the Sears lode; one of these, the east one, which is an old shaft, is 80 feet deep, and the west one 25 feet. Out of the east shaft a cross tunnel has been driven to the north 65 feet, and another to the south about 60 feet. The lode is stoped 50 feet on each side of the east shaft, 9 feet from the surface. North of the Sears lode 24 feet a shaft has been sunk 64 feet on another lode. Tunnels have been driven from this depth 100 feet to the west, and the lode stoped to within 24 feet of the surface. Further north, about 150 feet, the same Co. have a shaft on the Ferguson lode 35 feet deep; and east of it, on the same lode, another 70 feet deep. They have also made other openings, chiefly of an exploratory character.

The operations of the Canada Co. have been to the same limited extent as the preceding. The shafts have been sunk a little deeper; one of them, on the Milroy lode, being now 72 feet, and the two others, on the large lode, 200 feet south of the Dr. Hea lode, 64 feet and 36 feet respectively. In the Milroy lode tunnels have been driven, and the lode stoped 70 feet on the east side of the shaft, and 40 feet on the west, to about 30 feet from the surface; and at a depth of 50 feet in the east shaft, on the large lode, cross tunnels have been driven 20 feet each way on the north and south sides of the shaft. Machinery for hoisting and pumping has been erected during the year.

The openings on the property of the Wentworth Co. have been similarly extended. On the Cartwright lode, the northernmost one opened, the shaft has been sunk 25 feet further, and is now 65 feet deep. No other work has been done on this lode. The shafts on the Ferguson lode have also been sunk deeper, the east one being 60 feet and the west one 72 feet. A tunnel has been driven 42 feet to the west of the west shaft; and on the east side of the shaft the lode has been stoped between the two shafts to within 25 feet of the surface.

The shaft on the lode farther south has also been sunk 30 feet, and is now 70 feet deep. An engine for hoisting and pumping has been erected near the shafts on the Ferguson lode.

The only work done by the Coburg Co. has been the sinking to a greater depth of the shaft begun last year. It is now 130 feet. Hoisting and pumping machinery, worked by steam, has also been applied at this mine.

The Caledonia and Woodbine Co.'s operations have been principally on the Woodbine and Blakie lodes; the three shafts, in the former of which have been sunk by the Woodbine Co. to the depths of 75, 45 and 31 feet respectively, ranging in an easterly direction. Between the west and middle shafts, which are 90 feet apart, the lode has been stoped nearly to the surface, from a depth of 60 feet in the west shaft to a depth of 30 feet in the middle shaft. On the Blakie lode, 15 feet to the north of the Woodbine, there are now two shafts, the eastern one of which is 50 feet, and the west one 75 feet. About midway between these shafts tunnels have been driven in the lode 20 feet, on each side of a cross tunnel which is connected with the west shaft on the Woodbine lode. On the middle lode, lying to the north of the Woodbine the shaft has also been sunk 30 feet further, and is now 70 feet deep.

The Caledonia Co. have sunk a shaft on the Blakie lode 40 feet, from which a cross tunnel has been driven 75 feet to the south without cutting any lodes of importance.

A lode has recently been opened by Mr. McKinnon to the south and east of these operations. This lode is 12 inches thick. A shaft has been sunk on it 30 feet, and an open cutting been made about 40 feet in length.

### COCHRAN HILL.

Operations have been extended in this locality during the year, additional lodes having been found and opened. A shaft has been sunk on a belt of lodes 8 feet thick by the Cochran Hill Co.; this shaft is 100 feet deep. No stoping has been done out of it, but a portion of the belt is being

taken out by open work on each side of the shaft. Openings have been made by the same Co. on a 5 feet belt, lying 12 feet to the north. Other lodes, north of the last named, have been opened by Messrs. Kirk & Co., on which shafts are being sunk; and 15 feet further north Mr. James McDonald has begun operations on another belt.

### WINE HARBOR.

Mining in this locality is still of a fluctuating character, little having been done in some of the older mines, whilst those begun last year have been carried on with more or less regularity during the year.

On the Napier Co.'s property, adjoining and including that formerly held by the Provincial Co., three shafts have been sunk, the central one of which is between two lodes; the eastern shaft being on the north lode, and the western on the south lode. Out of the east shaft cross tunnels have been driven north and south. In the north one another lode has been cut, which has been mined a short distance on each side of the tunnel. An engine is applied to hoist and pump at these shafts in a very effective and economical manner. The Eureka Co.'s operations have been confined to the Eureka lode, on which two shafts were sunk last year. These have not been sunk any deeper, but the lode has been stoped between them to about 20 feet from the surface, and to the depth of each shaft. On the east side of the east shaft at its depth, 100 feet, a tunnel has been driven 75 feet, and the lode stoped 35 feet in length to a height of 25 feet. On the west side, and at the same depth, cross tunnels have been driven north 25 feet and south 40 feet. In the last named, at a distance from the shaft of 30 feet, a lode 5 inches thick was cut, and tunnels were driven in it in an east and west direction about 30 feet each way.

On the lode opened by Mr. McIntosh the Globe Co. have carried on operations. A belt of lodes 11 feet thick has been worked by open cutting along an extent of surface of about 420 feet, the extreme depth being 60 feet. A shaft is now being sunk on the lodes, and a length of underhand stoping of

40 feet is being carried down. The Co. have also opened a six-feet belt of lodes, and have taken out by open cutting a length of 30 feet to a depth of 35 feet.

The Eldorado Co. have begun a shaft on each of the last-named belts; they have also completed the tunnel, in making which they have been engaged for some time. On the lode into which this tunnel has been driven a shaft has been sunk 74 feet, and on each side of it the lode is being stoped nearly to the surface.

Nothing has been done by the Orient Co. on their property near the Barasois, operations having been entirely suspended the whole of the year.

### STORMONT.

In this district the Mulgrave Co. have continued their operations on the Mulgrave lode. The west or No. 1 shaft has been sunk 70 feet further. It is now 320 feet, and is at present standing at that depth. The No. 3 shaft has also been sunk deeper, and the stoping carried on in connection with it.

A considerable extent of prospecting has been done during the year on this Co.'s property, resulting in the finding of several lodes. On one of these, about 437 feet to the south of the Mulgrave, two shafts are being sunk, one near the shore and the other about 900 feet east of it. Other openings have also been made on this lode between the shafts. Lodes have also been found on the north of the Mulgrave.

South east of the Mulgrave property a belt of lodes has recently been opened by Mr. Buckley. This belt is upwards of 14 feet thick, and contains lodes varying from one inch to ten inches. Openings have been made on this belt over an extent of 600 feet; and preparations are being made for active mining, the quartz being highly auriferous.

At Seal Harbor prospecting has been continued. The lode from which the rich boulders which have been found in the locality are supposed to have come, has not yet, however, been found. The difficult character of the ground for prospecting has retarded the operations, but strong hopes are entertained of finding it in the ensuing spring.

The operations at Country Harbor, though not yet of much extent, are progressing very favorably. Lodes varying from 2 inches to 12 inches have been opened on the properties of Messrs. Cameron, McLean, and Kent. By the former two shafts have been sunk; one of them, the west one, being 20 feet, and the other 45 feet deep. On the McLean areas, adjoining on the east, a shaft is also in course of sinking to one of the lodes on the Cameron area; and on a 12-inch lode lying to the north of these, a shaft has been sunk 31 feet in an area also belonging to Mr. Cameron.

### LAWRENCETOWN.

The only operations of any importance in this locality are those of the Westminster Gold Mining Company, the purchasers of the property formerly held by Mr. Werner. The Co. have made considerable alterations in the mining arrangements; a new crusher has been erected, which is driven by a turbine water wheel, and machinery for hoisting by a similar power has also been applied. During the construction of these, mining has been carried on in the Nickey lode, on which there are three shafts. One of these, the west one, has been sunk 26 feet further, and is now 90 feet deep. Out of this shaft the lode has been stoped on each side, a distance of 170 feet being carried down by underhand stoping. A new and capacious shaft is also being sunk in the centre of a belt of lodes—it is now 62 feet deep. From this shaft cross tunnels are about to be driven to the north and to the south to intersect the lodes. The arrangements generally indicate a desire to give to the operations a character which may be worthy of imitation.

### MOUNT UNIACKE.

The operations in this largely developed district have not been to that extent which might have been expected from the number of mines and the length of lodes opened. Several of the mines have been worked only a short period during the year, and mining has not yet been resumed in them.

The Mount Uniacke Co.'s operations have been chiefly on

the lodes worked last year, the central shaft being now 230 feet deep, and the east one 200 feet. The lode has been stoped to these depths. The lode that was cut by the cross tunnel out of the central shaft has also been mined, the stoping having been extended 20 feet on each side of the shaft sunk on this lode. This shaft is being sunk deeper. The cross tunnel has been driven into the south lode, and a tunnel is in course of driving to the west in that lode.

Several lodes have been opened by the Montreal Co., by shafts varying in depths from 12 to 40 feet, in each of which the lode has been stoped a short distance on each side. These operations have been of a prospecting character, and made for the purpose of developing the property.

The only mining done by the Uniacke Central Co. has been on the north lode, on which a shaft was sunk last year. A tunnel has been driven from this shaft about 100 feet to the west, and another shaft has been sunk on the same lode 20 feet.

The operations of the Prince of Wales Co. have been on the Lunar lode, on which three shafts have been sunk, the east one being 25 feet, the middle 32 feet, and the west one 20 feet. Out of the east shaft a tunnel has been driven to the east 25 feet, and the lode stoped to within 8 feet of the surface. A similar extent of stoping has been done on the west side of the shaft. A tunnel has also been driven to the west from the middle shaft.

The Brunswick Co. have recently begun two shafts on the lode opened last year. On this lode a shaft was sunk 47 feet, and the two in course of sinking are situated to the east of it. No other work has been done during the year.

On the Queen Co.'s property the operations consist of the sinking of the east shafts on the Lunar lode to a depth of 30 feet, the lode being stoped between, and the commencement of other three shafts on the Hall lode. One of these is situated about 150 feet to the east of the last shaft, and is 15 feet deep. The other two are on the west of the west shaft.

The Westlake Co. have sunk their east shaft a few feet deeper, and extended the stoping in connection with it. Shafts have also been begun on other parts of the property. One of

these is on a lode 150 feet to the north of the lode first opened, and is 20 feet deep. On each side of the shaft an open cutting has been made 15 feet in length and 8 feet deep.

Shafts have also been sunk on the property formerly held by Mr. Burkner, and now owned by the Toronto Co.; and by Messrs. Bayne & Co. on their property. Operations on these are at present, however, suspended.

### FIFTEEN MILE STREAM.

Although this locality has not yet assumed any position as regards the yield of gold, the operations are of a character to confirm the now more generally acknowledged belief in the extent of the auriferous quartz in the province. A large extent of ground has been prospected, and a number of lodes, varying from one inch to four feet six inches in thickness, have been opened, on the areas of Messrs. Lyle, Hudson, Cameron, Fish, Chipman, Doran, and Walton, and others. Trenches have been cut on most of these properties. In one of them 20 lodes were intersected in a distance of 170 feet; and in another 10 lodes in 150 feet. Shafts have also been sunk on other lodes, and regular operations are being carried on.

### GAY'S RIVER.

Attention has been turned to this locality during the year; and mining operations, which have hitherto been on a small scale only, have been somewhat extended. The quartzite and slate formation is here overlaid by a bed of conglomerate, in which gold is found. It is also found in what appear to be cross lodes, to the range of the rocks, but which are very irregular in extent and position. They dip sometimes to the west and sometimes to the east. The conglomerate dips northerly.

At the commencement of operations a drift was driven a short distance into an exposure of the rocks and conglomerate in the banks of the stream. Mining has during the year been resumed in this drift by Messrs. Werner & Co. It is now about 200 feet in length. Two shafts have also been sunk to

the east of this drift, which are connected by tunnel and open cutting; and a tunnel is now being driven to the north out of the north shaft, the depth of the shaft being 27 feet. West of these openings operations have been begun by Messrs. Hopp, Salter and others, who have a drift 40 feet to the north, under the conglomerate. At this distance a tunnel has been driven a short distance to the west. Adjoining on the west the Messrs. Gay have made a similar opening, and have tunnelled to the west 100 feet.

Dr. McLean and Co. have likewise drifted to the north 70 feet, and driven a tunnel eastward 60 feet. To about the same extent, and in like manner, an opening has been made by Mr. Moor, and another is begun by Mr. D. Annand.

### MUSQUODOBOIT.

The operations begun in this locality in 1867 have been steadily continued, the principal mining having been by Messrs. Bushing and Hyde. The former opened a belt of lodes, the aggregate thickness of which is 20 feet, about 10 feet being quartz and the remainder slate. The belt is separated in proceeding eastward, a portion of it branching a little to the north. At the west end of the mine four shafts have been sunk, on one of the lodes, five feet in thickness. The deepest of these shafts is 40 feet. The lode has been opened between the shafts a distance of 300 feet. Out of the west shaft, at a depth of 25 feet, tunnels are being driven east and west. Four shafts have also been sunk on the north branch, and about 300 feet of the lode has been opened in an easterly direction. Several other lodes have been opened by Mr. Burkner in other parts of his property, but the operations have been chiefly of a prospecting character.

The lode opened by Mr. Hyde is about 1000 feet to the north of Mr. Burkner's big lode. It is six inches thick, and has been mined over an extent of about 600 feet. In this distance seven shafts have been sunk, the deepest being 66 feet. The others are about 50 feet. From these depths the lode has been stoped to within six feet of the surface nearly the entire range of the openings. Explorations are being

made in various parts of this locality by Mr. Touquay and others; and a wide extent of lodes has been developed, with indications of a promising character.

The only other locality in which mining has been carried on with any degree of regularity is Cranberry Head, in the county of Yarmouth. Several lodes have been exposed. On one of them openings have been made by Messrs. Ryerson and Co. On this lode, the average thickness of which is 10 inches, two shafts have been sunk, one of them to a depth of 97 feet, and the other 47 feet. The lode has been worked by open cutting from the shore to these shafts, a distance of 600 feet, and to a depth of 20 feet. Operations are at present suspended until machinery for hoisting is erected at the deepest of the two shafts.

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## ACCIDENTS.

The number of accidents during the year is the same as last year, and the number of persons injured is also exactly the same; the deaths, however, are fewer. There is an increase in the number of accidents by explosions of powder, six having occurred, of which one was fatal; six persons have been hurt by falls of stone and coal, one of whom died; four were hurt by explosions of gas; three crushed by machinery and tubs, one case terminating fatally; and three were killed by falling down shafts. The following is a summary of the casualties:

No.	Date.	Name.	Name of Mine.	Cause.	Result.
1	1869. Jany. 14	John D. Cameron Thomas Boggs...	Provincial, Wine Harbor	{ Explosion of powder	Recovered.
2	Jany. 29..	Henry Hickman.... Robert Palmer ....	Marsh..... Maish.....	Fall down shaft..... Fall down shaft.....	Died. Died.
3	Feby. 4..	James Leason.....	Sydney.....	Fall of stone .....	Recovered.
4	Feby. 15..	Frederick McEwen.	Provincial..	Crushed by machinery	Recovered.
5	March 1..	W. Harkness.....	Mulgrave...	Explosion of powder.	Recovered.
6	April 15..	John McKinnon..	Victoria ..	Explosion of gas....	Recovered.
7	May 1..	Malcolm McLean..	Victoria ..	Explosion of gas....	Recovered.
8	May 6..	Adam Laidlaw.....	Waverley ..	Fall of stone .....	Died.
9	June 3 ..	John Gallagher....	Caledonia ..	Explosion of powder.	Recovered
10	June 26..	Duncan McPhail...	Albion. ....	Crushed by tubs .....	Recovered

No.	Date.	Name.	Name of Mine.	Cause.	Result.
	1869.				
11	July 13..	John Bryce .....	Sydney ....	Explosion of gas.....	Recovered.
	July 13..	John Melvin . ....	Sydney ....	Explosion of gas.....	Recovered.
12	July 15..	G. McPherson.....	Wellington .	Fall of stone .....	Recovered.
13	July 28..	D. Finlayson.....	Lingan ....	Fall of coal.....	Recovered.
14	Aug. 31..	R. McPherson.....	Drummond.	Crushed by tubs .....	Died.
15	Sept. 7..	William Hatch ....	Uniacke .....	Fall down shaft.....	Died.
16	Sept. 8..	Gregory Meagher..	Sydney ....	Fall of stone .....	Recovered.
17	Sept. 21.	John Way .....	Sydney ....	Explosion of powder.	Recovered.
18	Sept. 21..	Jerry Tuney.....	Sydney ....	Explosion of powder.	Recovered.
9	Sept. 22..	Benjamin Brown...	Sydney ....	Fall of stone . .....	Recovered.
0	Sept. 23 .	D. McDonald.....	Drummond.	Explosion of powder.	Died.

No. 1. In this case a shot had been prepared, which from some cause missed fire, and the two men, Cameron and Boggs, were endeavoring to take out the powder with a drill, when it exploded. Boggs escaped with slight injury, but Cameron lost both his hands.

No. 2. Hickman and Palmer were coming up the shaft, at the Marsh colliery, in a tub; when they had ascended about 170 feet, the tub became detached from the hook, and they and it fell to the bottom. As they were the only persons in the pit at the time, it was their duty to see that the tub was properly attached before giving the signal to hoist. The hook was not again used till I had examined it, and there appeared to be nothing faulty about it. It can only be conjectured, therefore, that the bow of the tub had not been on the hook, but resting on the point of it, from which it slipped on receiving a jerk.

No. 3. James Leason was a deputy in the Sydney Mines, and was busy laying a tramway in one of the bords, when a portion of the roof fell upon him and broke his back.

No. 4. McEwen was engaged repairing some of the machinery at the Provincial mine, when, owing to a movement of some portion of it, his hand was severely crushed.

No. 5. This accident occurred in the following manner: Harkness and another man had partly charged a hole for blasting, when they observed that the fuse was ignited; they were able to reach a stage a short distance from where they were before the explosion took place, but Harkness appears to have been shook off by the force of the explosion, and he

fell about ten feet, among some loose rock, by which he was bruised about the head and back.

No. 6. McKinnon was burnt by an explosion of gas in the Victoria mine. He was allowed to go into his place after the pit had been unworked a few days, without being warned of the presence of the gas, and having a naked light, the usual consequence followed.

No. 7. This accident also occurred at the Victoria mine, and in a similar manner, with fortunately no more serious result than in the preceding case.

No. 8. The death of Laidlaw was caused by a stone falling down one of the shafts of the Waverley gold mining Co. He and another man were engaged drilling a hole in the rock a short distance from the bottom of the shaft. A man who was preparing tamping in the shaft heard the stone coming, and shouted to warn them. Although they were about seven feet from the bottom of the shaft, the stone, probably by a rebound, struck Laidlaw on the side of the head, and caused instant death. Whether the stone fell from the surface, or from a scaffolding, is not known.

No. 9. Gallagher had prepared a shot and lighted the fuse but as the explosion did not take place so soon as he expected, he thought it had missed, and went close to it to examine it, when the explosion occurred. Fortunately the coal was not thrown, and he was struck only by the stemming, and not seriously hurt.

No. 10. In this case it appears the boy McPhail was climbing up a wall by the side of one of the inclines in the Dalhousie pit, when it gave way with him, as the full tubs were being run down. These passed over him, and so injured one of his arms that it had to be taken off.

No. 11. This accident was caused by an explosion of gas in the Queen pit, Sydney mines. Bryce and Melvin were engaged making a holing between two bords, one of which had been standing a short time, and was known to have a little gas near the face of it. A safety lamp was given to them by the deputy to use before cutting the coal through. With this lamp Melvin went into the bord, and finding no gas near the place where they expected to hole, he returned to

Bryce and assisted him to enlarge the opening. Subsequently he went again into the bord, but with a naked light, and having foolishly gone into the face of the bord, about three yards beyond the heling, he set fire to the gas, and the explosion occurred. Melvin was not much injured, but Bryce, being exposed to the rush of the flame through the opening made in the low part of the seam, was more seriously burnt.

No. 12. McPherson was employed in the Wellington mine at Sherbrooke. It was his duty to fill the tubs and send them up the shaft. In this instance he went into the shaft bottom before the ascending tub had reached the top, and a piece of rock falling struck him below the knee and broke his leg.

No. 13. This accident is attributed to a want of timber to support the roof coal in the place where Finlayson was working. He had been cautioned respecting the risk he was running, but being desirous to get his coal away he neglected to set some timber, and a portion of the roof fell and severely crushed him.

No. 14. The death of the boy McPherson was caused by his being run over by the loaded tubs as they were being drawn up the slope at the Intercolonial mine. He was riding on the front of the train, and when endeavoring to get off before it reached the top, to evade detection, he slipped, and falling across the track, the tubs passed over him, and so severely injured him that he died a few hours after.

No. 15. Meagher and some others were engaged clearing away a fall of the roof in the Sydney mine, and whilst so employed a large piece of stone fell and severely injured him.

No. 16. This accident occurred at the Uniacke Co.'s mine. Hatch was working in a part of the mine about 40 feet from the bottom of the shaft. When attempting to get into the tub as it was being drawn past him to ascend the shaft he slipped and fell to the bottom. Both his arms were broken, yet it was hoped he was not fatally injured. He died, however, two days after the accident.

No. 17. Way had prepared a shot which missed fire, and whilst endeavoring to get out the charge with his drill, it exploded, and he was much injured about the face.

No. 18. This was a precisely similar occurrence, the only difference being that Tumy had abstracted a larger portion of the powder before the remainder exploded.

No. 19. Brown was employed in the Sydney mine as a driver, and when hauling coal out of a narrow bord was struck by a piece of stone which fell from the roof.

No. 20. The extreme carelessness of the unfortunate sufferer, in this case, is but another instance of the recklessness which too often prevails among miners. McDonald had prepared a hole for a shot, and, it is said, went to take the charge required from the keg containing the powder while in the act of smoking. An explosion occurred, with such fatal consequences as might, under such circumstances, be expected.

There is one class of accidents in the preceding statement on which I beg to repeat the remarks formerly made. Explosions of powder are still of frequent occurrence; nor is it to be wondered at when it is evident that, to save a little trouble, miners will run such risks. In the case of a "missed shot" in coal the safest course would be to wedge the coal down, and not to attempt to take out the charge. In stone the hole takes much more time to make, and the temptation to try to draw the charge is consequently greater. It is an operation, however, that is attended with so much danger that it should be strictly prohibited by all the managers of mines. There are some, I am glad to say, who have established a rule of that character. When there is a doubt whether a shot is lighted or not the wisest plan is to give it plenty of time, and not to hurry to examine it. The prudence of the delay would seem to be so evident that a suggestion of this kind may seem superfluous; but the simplest remedy will bear repetition if it tend to prevent loss of life.

I have the honor to be,

Your obedient servant,

JOHN RUTHERFORD,  
*Inspector of Mines.*

The Hon. ROBERT ROBERTSON,

*Chief Commissioner of Mines and Public Works.*



TABLES SHOWING THE NUMBER OF GOLD MINES BEING WORKED, THE AVERAGE NUMBER OF MEN ENGAGED IN MINING, THE QUANTITIES OF QUARTZ RAISED AND CRUSHED, WITH AVERAGE YIELD PER TON, AND THE TOTAL YIELD OF GOLD, &c., &c., IN THE VARIOUS GOLD DISTRICTS, FOR THE TWELVE MONTHS ENDING DECEMBER, 1869, AS PER STATISTICAL RETURNS OF THE DEPUTY COMMISSIONERS.

### JANUARY, 1869.

DISTRICTS,	Number of Mines being worked.	Average No. of men daily em- ployed in mining.	Total number of mines daily em- ployed in mining.	Number of Quartz Mills in Districts.	Do. Stream Power, Water Power.	Tons.	Lbs.	Cwt.	Quartz Crushed.	Tons.	Lbs.	Cwt.	Yield per Ton.	Maximum yield per ton.	Gold obtained otherwise than from Crusher.	Total yield of Gold.	
						oz.	gr.	dwt.	oz.	gr.	gr.	dwt.	oz.	gr.	dwt.	oz.	gr.
Stormont, "Isaac's Harbor", . . .	4	25	2	1	100	199	10	..	07	04	09	20	..	..	..	71	11
Wine Harbor . . . . .	5	80	4	3	1	25	11	..	07	01	20	18	..	..	..	88	10
Sherbrooke . . . . .	11	130	10	9	1	1200	..	1402	..	06	10	310	..	..	..	451	03
Tanguier . . . . .	3	46	3	2	1	9	..	9	..	06	20	0620	..	..	..	302	..
Montagny . . . . .	2	36	2	2	..	63	..	63	..	11	09	21617	..	..	..	9816	02
Waverley . . . . .	3	43	4	3	1	261	..	289	..	08	01	1514	..	..	..	11709	..
Oldham . . . . .	8	38	4	3	1	72	..	72	..	10108	1	1407	..	..	..	76	11
Renfrew . . . . .	8	154	6	3	3	600	..	538	..	09	08	1910	..	..	..	25101	..
Uinacke . . . . .	14	110	5	5	..	388	15	34015	..	12	15	20019	..	..	..	21419	12
Lawrencetown . . . . .	2	20	2	2	..	8	..	8	..	09	18	6918	..	..	..	318	..
Unproclaimed and other Districts	8	21	8	4	4	21	..	11	15	..	10	16	..	..	..	609	13
Totals. . . . .	68	703	5035	15	2974	06	..	318411	..	08	17	310	..	..	..	138310	23

FEBRUARY.

MARCH.

APRIL.

MAY.

62

DISTRICTS.	Number of Mines bearing worked.			Average No. of Men daily employ- ed in mining.			Total number of Quartz Mills in District.			Do. Stream Power.			Do. Water Power.			Total number of Quartz Mills in District.			Yield per ton.			Maximum yield per ton.			Gold obtained otherwise than from Crusher.			Total yield of Gold.		
	Cwts.	Tons.	Lbs.	Cwts.	Tons.	Lbs.	Cwts.	Tons.	Lbs.	Dwt.	Oz.	Gr.	Dwt.	Oz.	Gr.	Dwt.	Oz.	Gr.	Dwt.	Oz.	Gr.	Dwt.	Oz.	Gr.	Dwt.	Oz.	Gr.			
Stormont, "Isaac's Harbour" . . .	2	14	2	2	50	.	71	..	..	12	14	116	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	44	15	07
Wine Harbour . . . . .	4	69	5	4	1	271	..	256	..	03	..	1101	..	..	..	..	..	..	..	..	..	..	..	..	..	..	79	19	22	
Sherbrooke . . . . .	12	130	10	9	1	952	..	952	..	1104	3	1108	..	..	..	..	..	..	..	..	..	..	..	..	..	..	532	10	01	
Tangier . . . . .	3	51	3	2	1	111	..	166	..	1008	2	1308	..	..	..	..	..	..	..	..	..	..	..	..	..	..	85	16	..	
Montagu . . . . .	2	15	2	2	2	35	..	35	..	10400	2	04	..	..	..	..	..	..	..	..	..	..	..	..	..	..	41	17	14	
Waverley . . . . .	5	63	4	3	1	196	..	*478	..	0503	..	1511	..	..	..	..	..	..	..	..	..	..	..	..	..	..	124	01	12	
Oldham . . . . .	8	46	4	3	1	118	11	..	118	11	..	1614	2	0308	..	..	..	..	..	..	..	..	..	..	..	..	95	17	22	
Renfrew . . . . .	7	115	6	3	3	417	..	417	..	1113	..	1908	..	..	..	..	..	..	..	..	..	..	..	..	..	..	239	05	08	
Uniacke . . . . .	14	66	5	5	5	429	..	421	..	0802	1	0023	..	..	..	..	..	..	..	..	..	..	..	..	..	..	171	01	03	
Lawrencetown . . . . .	1	4	2	1	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Musquodoboit . . . . .	2	52	2	1	1	125	17	..	125	17	..	0713	..	1606	..	..	..	..	..	..	..	..	..	..	..	..	47	16	07	
Unproclaimed and other Districts	5	10	5	2	3	56	10	..	56	10	..	0408	..	0408	..	..	..	..	..	..	..	..	..	..	..	..	13	01	12	
Totals . . . . .	65	635	50	36	14	2761	18	..	3096	18	..	912	3	1108	..	..	..	..	..	..	..	..	..	..	..	..	1476	2	12	

\* 228 tons of waste from dump gave 32 oz. 05 dwt. 11 grs.

63 tons of waste from dump gave 13 oz. 12 dwt 16 grs.

## JUNE.

Stormont, "Isaac's Harbour" . . .	5	12	2	2	80	..	6 10	..	11 23	..	..	..	..	3 15	0 1	
Wine Harbour . . . . .	4	81	5	4	1	386 07	..	386 07	..	0 207	0 8	..	..	44 10	..	
Sherbrooke . . . . .	11	130	10	9	1	853	..	853	..	11 11	1 07	..	..	488 19	11	
Tanguer . . . . .	3	51	3	2	1	111	..	92	..	1	1 16	..	..	92 05	..	
Montague . . . . .	3	23	2	2	..	54 05	..	54 05	..	12 14	1 05 08	..	..	34 02	18	
Waverley . . . . .	5	52	4	3	1	196	..	222	..	08 19	1 7 04	..	..	97 14	..	
Oldham . . . . .	10	46	4	2	1	177 05	..	177 05	..	13	1 06 14	..	..	114 12	10	
Rensfrew . . . . .	6	116	6	3	3	625	..	625	..	08 15	1 9	..	..	270 04	18	
Uniacke . . . . .	17	86	5	5	..	365	..	355 18	..	11 13	4	..	..	205 12	10	
Lawrencetown . . . . .	1	4	2	..	2	..	..	..	..	..	..	..	..	..	..	
Musquodoboit . . . . .	2	52	2	1	1	192	..	192	..	08 12	1 6 07	..	..	81 15	..	
Unproclaimed and other Districts	6	26	5	2	3	103	..	103	..	02 08	08 12	56	11 17	68 11	23	
Totals . . . . .	73	679	50	36	14	3142 17	..	3067	5	..	9 19	4	..	56	11 17	1502 2 19

JULY.

## AUGUST.

Stormont, "Isaw's Harbour" . . . . .	4	65	2	1	1	287	... . . . .	78	15	... . . . .	10	205	... . . . .	3908	...
Wine Harbour . . . . .	15	120	10	9	1	1393	... . . . .	1393	... . . . .	... . . . .	0601	101	01	42300	19
Sherbrooke . . . . .	4	39	4	3	1	42	... . . . .	47	... . . . .	10500	10500	... . . . .	5815	...	
Tangier . . . . .	3	25	2	2	2	38	... . . . .	38	... . . . .	20220	36808	... . . . .	8108	03	
Montagu . . . . .	3	52	4	3	1	200	... . . . .	215	... . . . .	1115	1607	... . . . .	12502	...	
Waverley . . . . .	12	46	4	3	1	11706	... . . . .	11706	... . . . .	18072	1308	... . . . .	10706	01	
Oldham . . . . .	10	115	6	3	3	474	... . . . .	474	... . . . .	0622	1300	... . . . .	16403	...	
Renfrew . . . . .	16	72	5	5	5	25110	... . . . .	259	... . . . .	1321	60406	... . . . .	18413	11	
Uniacke . . . . .	2	39	2	2	2	85	... . . . .	77	... . . . .	0219	0309	... . . . .	1018	15	
Lawrencetown . . . . .	2	30	2	1	1	217	... . . . .	217	... . . . .	12	30413	... . . . .	131	...	
Musquodoboit . . . . .	4	40	6	3	3	11	... . . . .	11	... . . . .	0406	0406	... . . . .	207	...	
Unproclaimed and other Districts															
Totals . . . . .	77	643	52	37	15	3115	16	... . . . .	291701	... . . . .	902	60406	... . . . .	132802	01

## SEPTEMBER.

\* 8 Cwt. gave 26 oz, 01 dwt.

OCTOBER.

Stormont, "Isaac's Harbour" . . . . .	7	28	1	1	1	288	04	288	04	05	04	17	07	74	13	01		
Wine Harbour . . . . .	4	32	5	4	1	1076	08	1076	08	11	01	2	15	16	59	05	20	
Sherbrooke . . . . .	16	156	11	9	2	158	14	158	14	08	20	75	..	..	70	04	..	
Tangier . . . . .	3	64	4	3	1	68	14	68	14	..	..	..	..	..	..	..	..	
Montague . . . . .	2	33	2	2	1	34	..	34	..	1	19	13	2	02	17	67	05	..
Waverley . . . . .	6	61	4	3	1	298	..	298	..	10	14	..	15	21	..	158	02	..
Oldham . . . . .	8	92	4	3	1	175	..	211	..	12	22	1	08	02	..	137	02	19
Renfrew . . . . .	10	77	6	3	3	550	..	1155	04	08	11	1	01	07	..	489	08	06
Uniacke . . . . .	17	56	6	5	1	189	10	189	10	12	23	3	07	..	..	122	15	..
Lawrencetown . . . . .	2	17	2	1	2	59	..	246	..	19	16	23	..	..	..	..	..	..
Musquodoboit . . . . .	3	60	2	1	1	540	4	540	4	09	06	..	10	..	..	241	19	..
Unproclaimed and other Districts	10	33	6	3	3	..	..	..	..	..	..	..	..	..	..	241	19	10
<b>Totals . . . . .</b>	88	709	53	37	16	3039	00	3710	04	..	10	16	75	..	..	1980	14	08

NOVEMBER.

## DECEMBER.

Stormont, "Isaac's Harbour") .....	7	40	2	1	61	...	2605	...	0504	60403	...	...	614	63
Wine Harbour .....	3	14	5	4	1	186	...	186	...	0614	0913	...	6110	12
Sherbrooke .....	17	160	11	9	2	83101	...	83101	...	16	20812	...	67409	21
Tanguay .....	2	64	4	3	1	12905	...	12905	...	1017	21920	...	19814	08
Montague .....	2	33	2	2	..	9010	...	9010	...	11714	20605	...	17004	06
Waverley .....	7	61	4	3	1	341	...	47310	...	07116	1519	...	17618	02
Oldham .....	13	73	5	3	2	18204	...	18204	...	1808	21214	...	16618	19
Renfrew .....	10	77	6	3	3	74015	...	74015	...	0512	1	...	20408	..
Uniacke .....	11	33	6	5	1	150	...	2210	...	0903	1401	...	1003	04
Lawrencetown .....	2	18	2	1	2	58	...	58	...	17	10807	...	...	..
Musquodoboit .....	3	60	2	1	1	93	...	93	...	1005	1005	...	7900	08
Unproclaimed and other Districts	10	33	6	3	3	3316	...	3316	...	1005	52	07	6913	..
Totals .....	87	666	553718289611	..	280816	...	1222	...	60403	52	07	181814	11	

## B.

STATEMENT SHewing THE AVERAGE DAILY LABOR EMPLOYED, THE AMOUNT OF QUARTZ CRUSHED, "THE YIELD OF GOLD PER TON OF QUARTZ," THE QUANTITIES OF GOLD FROM ALLUVIAL MINES, THE YIELD OF GOLD, THE MAXIMUM YIELD PER TON IN EACH DISTRICT, AND IN THE WHOLE PROVINCE, AND THE VALUE OF THE AVERAGE YIELD OF GOLD PER MAN EMPLOYED IN MINING, FOR TWELVE MONTHS ENDED DECEMBER 31ST, 1869.

DISTRICTS	Average men em- ployed.	Crushing Minis tried, 31st, 1869.	Steam Power.	Water Power.	Quartz, &c., crushed.	Yield per ton.	Gold from Alluvial Mines,	Total yield of Gold,	Maximum yield per ton.	Average yield months, at \$13.50 per oz.
										70
Stormont, "Isaac's Harbor" . . . . .	19	2	1	1	784 00	05 19	.....	227 00	13 6 04	03 221 00
Wine Harbor . . . . .	65	5	4	1	2726 12	05 06	.....	719 08 19 5 07	03 204	76
Sherbrooke. . . . .	134	11	9	2	11500 00	09 15	.....	5546 11 16	6 09	13 765 76
Tanguier. . . . .	51	4	3	1	1332 02	17 21	.....	1192 03 10 75	00	00 430 50
Montagny. . . . .	29	2	2	.	572 07 1	08 03	.....	805 13 14 3	08 08	08 514 00
Waverley. . . . .	54	4	3	1	3915 15	08 03	.....	1591 14 10 1	00 14 545	29
Oldham. . . . .	56	5	3	2	1735 02	16 01	.....	1394 16 00	8 00	12 460 76
Ronfrew. . . . .	112	5	2	3	7258 09	08 12	.....	3097 15 07 1	01 07 497	76
Uniacke. . . . .	71	6	5	1	3171 13	11 18	.....	1867 03 12 6	04 06 345	55
Lawrencetown. . . . .	20	2	.	2	223 00	02 16	.....	30 00 20 1	01 17	27 75
Musquodoboit. . . . .	36	2	1	1	1582 17	12 17	.....	1001 00 23 23	00 00 514	39
Unproclaimed and other Districts	29	6	3	3	622 09	06 23	177 18 11	394 11 19	17 12 251	72
	676	51	36	1835424 06	10 02 177 18 11	7868 00	19 75 00	00 00	489 00	

## No. 1.

STATEMENT SHewing THE NUMBER OF MEN EMPLOYED, QUARTZ CRUSHED, AND GOLD OBTAINED EACH MONTH IN EACH DISTRICT.

MONTH.	STORMONT.			WINE HARBOR.			SHERBROOKE.			TANGIER.			MONTAGU.			
	Men.	Tons.	Ozs.	Men.	Tons.	Ozs.	Men.	Tons.	Ozs.	Men.	Tons.	Ozs.	Men.	Tons.	Ozs.	
January . . . . .	25	199	10	71	11	13	80	251	11	88	10	06	130	140	2	
February . . . . .	20	80	..	66	163	..	60	18	..	180	100	..	366	13	10	
March . . . . .	17	1	10	..	05	07	121	306	08	68	08	17	120	108	..	
April . . . . .	18	10	10	12	10	09	81	171	14	50	09	12	100	394	14	
May . . . . .	14	71	..	44	15	07	69	256	..	79	19	22	130	952	..	
June . . . . .	12	610	3	15	01	81	386	07	44	10	..	130	853	..	..	
July . . . . .	..	24	196	..	48	00	21	95	260	06	51	01	15	132	877	..
August . . . . .	..	78	15	..	39	08	..	65	..	..	..	..	120	139	3	..
September . . . . .	..	..	..	..	..	..	..	70	335	08	89	04	15	100	722	12
October . . . . .	..	28	..	..	..	..	..	32	288	04	74	13	01	156	1076	08
November . . . . .	..	37	114	..	..	..	13	121	14	46	19	15	156	918	16	..
December . . . . .	40	26	05	..	614	03	14	186	..	61	10	12	160	831	01	..
	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
	19784	. .	227	00	13	65	2726	12	719	08	19	134	115600	11	5516	11
														511332	02	1192
														11	16	59
														572	07	805
														13	14	1

No. 2.

MUSQUODOBIT.

UNPROCLAMED AND OTHER DISTRICTS.

## C.

COAL RAISED AND SOLD IN THE PROVINCE DURING THE YEAR ENDED DECEMBER 31ST, 1869.

COUNTY.	Round.	Slack.	TOTAL ROUND.		TOTAL SLACK.		TOTAL.	
			N. S. Proper.	N. S. Proper.	Tons.	Tons.	N. S. Proper.	N. S. Proper.
Cumberland . . . . .	7648	867	.....	.....	.....	.....	.....	.....
Picton . . . . .	175286½	22925	182934½	23792	206726½	206726½	206726½	206726½
			Cape Breton.	Cape Breton.	Cape Breton.	Cape Breton.	Cape Breton.	Cape Breton.
Cape Breton . . . . .	287027	17292½	.....	.....	.....	.....	.....	.....
Inverness . . . . .	292	40	.....	.....	.....	.....	.....	.....
Richmond . . . . .	.....	.....	.....	.....	.....	.....	.....	.....
Victoria . . . . .	372	45	287691	17377½	305068	305068	305068	305068
	470625½	41169¼	470625½	41169¼	41169¼	41169¼	41169¼	41169¼
								511794¾

## Returns Coal Raised AND SOLD DURING YEAR ENDED DECEMBER 31ST, 1869.

COLLIERY.	COUNTY.	QUARTER ENDED MARCH 31ST, 1869.												QUARTER ENDED JUNE 30TH, 1869.													
		Raised.				Sold for Home Consumption.				Exported to Neighboring Colonies.				Raised.				Sold for Home Consumption.				Exported to Neighboring Colonies.				Exported to other Countries.	
		Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	Tons.	
Jorings..	Cumberland ..	5623	625	10	10	...*	...*	...*	...*	...*	...*	...*	...*	2189	253	165	...*	1297	118	310	...*	...*	...*	...*	...*	...*	
Macan	..	390	201	40	40	...*	...*	...*	...*	...*	...*	...*	...*	130	30	...*	...*	120	...*	...*	...*	...*	...*	...*	...*	...*	
New York & Acadia ..	..	78	...*	...*	...*	...*	...*	...*	...*	...*	...*	...*	...*	...*	...*	...*	...*	...*	...*	...*	...*	...*	...*	...*	...*	...*	
C. H. Black..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
McFarland ..	..	..	..	..	..	..	..	..	..	..	..	..	..	1361	1383	660	626	4010	185	2630	..	..	..	..	..	..	
Acadia ..	..	..	..	..	..	..	..	..	..	..	..	..	..	20946	3013	2346	863	312	1080	28308	..	..	..	..	..	..	
Albion ..	..	..	..	..	..	..	..	..	..	..	..	..	..	10675	2250	1301 <sup>3</sup>	464	5334	1057	5194	..	..	..	..	..	..	
Interocolonial ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	3	..	..	..	..	..	..	..	..	..	
McBain ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Merigomish ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Nova Scotia ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Pictou ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Mckinnon ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Acadia ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Cape Breton ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
Block House ..	..	9921	400	85	40	...*	...*	...*	...*	...*	...*	...*	...*	228	2319	765	1075	..	..	..	..	..	..	..	..	..	
Caledonia ..	..	9275	1423	3	3	40	40	...*	...*	...*	...*	...*	...*	10757	3551	2	24	603	7	603	..	..	..	..	..	..	
Clyde ..	..	..	..	1363 <sup>1</sup>	21 <sup>1</sup>	33	16 <sup>1</sup>	..	..	..	..	..	..	300	300	2	2	..	..	..	..	..	..	..	..		
Collins ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		
Glace Bay ..	..	..	..	..	..	..	..	..	..	..	..	..	..	292	391	2392	356	746	4	4455	..	..	..	..	..	..	
Gowrie ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		
Gardiner ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		
Ingraham ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		
International ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		
Lingan ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		
Matheson ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		
South Head ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		
Sydney ..	..	12897	4806	240 <sup>2</sup>	6144	273	..	..	..	..	..	..	..	21515	3090	10091	214	6561	48	621	180	..	..	..	..		
Victoria ..	..	600	..	10	3	..	..	..	..	..	..	..	..	2377	793	981	48	279	90	..	..	..	..	..	..		
Balmoral ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		
Lorway ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		
Chimney Corner ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		
Black Rock ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		
New Campbelton ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..		
		83372	19223	5504 <sup>1</sup>	19294	1135	..	..	..	..	..	..	..	..	520	..	..	..	132955	168691	227631	37261	22855	2807	371311	259	



STATEMENT OF THE AVER. NUMBER OF PERSONS EMPLOYED; NO. OF HORSES, ENGINES, &c., AT EACH COLLIERY IN THE YEAR ENDING DEC. 31, 1869.

MINE.	Average Number of Persons Employed.						Number of Days Labor.			Aver. No. of Horses per colliery.			Aver. No. of Engines per colliery.			No. of Horses, Engines, &c., at each Colliery in the Year Ending Dec. 31, 1869.		
	Colliery Men.	Bays	Men.	Rays	Total.	In Mine.	In Surface.	Total.	Aver. days per month.	Aver. tons per month.	Aver. days per month.	Aver. tons per month.	No. of Horses per day.	No. of Horses per month.	Average No. of days per month.	No. of Horses per month.	No. of Engines per month.	
Joggins.....	13391	20	5	9	2	36	5445	2303	7748	215	372	217	61	10	1	9		
MacLean.....	670	4	1	1	1	7	517	152	669	95	103	1	1	1	1	1	20	
New York and Acadia.....	910	6	... 80	7	1	14	235	1941	2176	155	65	39	23	1	1	1	12	
C. H. Black.....																		
A. McFarlane.....	15	... 55314	92	15	54	2	163	22165	14835	37300	229	339	264	10	3	3	70	
Acadia.....	101609	179	53	207	33	472	49179	64427	113606	239	215	478	54	3	20	23	1350	
Albion.....	378	6	... 319	3	9	11	246	189	479	715	42	39	10	1	1	1	1	
McBain.....	91	21	81	3	196	21814	18285	43099	220	311	221	275	10	2	2	2	60	
Nova Scotia.....	12	... 12½	6	8	26	247	134	381	14	3	20	3	3	1	1	1	15	
Intercolonial.....	125	3	1	4	309	122	431	108	31	103	1	1	1	1	1	1	1	
Marsh.....	53	8	1	14	23	60	231	291	13	2	6	9	1	1	1	1	1	
Merigomish.....	78626	135	39	83	14	271	35258	20648	55906	206	290	202	389	38	2	2	90	
Acadia, C. B.....	10	... 32441	52	4	39	... 93	11879	9318	21197	223	352	212	153	10	2	2	55	
Block House.....	2674	10	1	17	1	29	1127	2492	3619	124	92	102	23	1	1	1	7	
Balmoral.....	24755	52	11	40	5	108	6763	9169	16232	150	229	107	234	21	4	4	65	
Caldonia.....	51346	80	15	49	7	151	22660	12146	35106	232	310	238	215	23	1	1	25	
Clyde.....	215	3	1	1	4	126	42	168	42	53	42	5	2	2	2	2	30	
Collins.....	40	... 3763½	19	30	1	53	2489	2691	5180	97	71	113	33	13	1	1	7	
Glace Bay.....	31943	80	21	38	9	148	17614	8556	26210	177	215	175	182	13	3	3	100	
Gowrie.....	33	... 107481	2	170	22	506	64616	50369	114985	227	212	205	524	84	2	2	55	
Garleac.....	215	... 9973	41	35	9	93	6780	8412	15192	163	107	138	72	4	3	3	40	
Ingraham.....	40	... 107481	233	81	170	22	506	64616	50369	4273	133	14	97	4	3	3	7	
International.....	33	... 9973	41	8	35	9	93	6780	8412	556	69	26	64	3	3	3	1	
Lingan.....	30	... 448	6	25	31	585	3690	4273	133	14	97	4	3	3	3	3	7	
Madison.....	33	... 448	6	25	31	585	3690	4273	133	14	97	4	3	3	3	3	7	
South Head.....	2	... 186	3	4	8	192	364	556	69	26	64	3	3	3	3	3	7	
Sydney.....	186	... 211	3	4	8	192	364	556	69	26	64	3	3	3	3	3	7	
Victoria.....	30	... 50	6	25	31	585	3690	4273	133	14	97	4	3	3	3	3	7	
Antigonish.....	30	... 448	6	25	31	585	3690	4273	133	14	97	4	3	3	3	3	7	
Chignecty Corner.....	30	... 448	6	25	31	585	3690	4273	133	14	97	4	3	3	3	3	7	
Black Rock.....	186	... 211	3	4	8	192	364	556	69	26	64	3	3	3	3	3	7	
New Campobello.....	211	... 50	3	4	8	192	364	556	69	26	64	3	3	3	3	3	7	
Lorwyn.....																		
	578062	1141	279	917	121	2458	273842	231635	505477	...	...	...	310	59	61	2857	...	

**GOLD.**

MINES DEPARTMENT for 12 Months ended December 31st, 1869.

RECEIPTS.

DISTRICTS.	RECEIPTS.			EXPENDITURE.					
	Rents,	Royalty,	Sites,	Totals,	Salaries, Surveys, &c.,	Return of Royalty Rents.	Royalty Commission,	Lands,	Totals,
Oldham .....	\$633 50	\$10 00	\$982 73	\$220 50	\$2 00	\$18 97	.....	.....	\$257 35
Benfrew .....	875 75	1616 75	2492 50	260 92	88 00	82 77	.....	.....	431 69
Waverley .....	150 00	1443 17	1593 17	378 84	24 00	127 43	151 69	.....	681 96
Tangler .....	578 00	570 82	1148 82	60 00	.....	16 38	\$500 00	.....	576 38
Stormont (Isaac's Harbour) .....	1135 63	115 92	1251 53	622 76	.....	12 35	.....	.....	635 71
Wine Harbour .....	1222 00	402 34	1624 34	703 75	28 00	21 01	.....	.....	752 76
Sherbrooke .....	1650 00	2993 66	4643 66	759 62	12 00	147 06	.....	.....	918 68
Ovens .....	94 00	1 66	95 66	22 75	.....	.....	.....	.....	22 75
Montagn .....	414 00	207 23	621 23	27 36	4 00	.....	.....	.....	31 36
Waganatook .....	44 00	.....	44 00	.....	.....	.....	.....	.....	.....
Unacke .....	668 00	1071 34	1739 34	286 55	50 00	67 60	.....	.....	304 15
Lawrence town .....	252 00	9 05	261 05	17 00	.....	.....	.....	.....	17 00
Musquodoboit—Unproclaimed .....	1540 00	214 63	1754 63	822 67	54 00	9 67	.....	.....	886 36
Fifteen-Mile Stream .....	98 00	.....	98 00	.....	.....	.....	.....	.....	.....
Prospecting Licences, .....	.....	.....	7453 87	.....	.....	.....	.....	.....	.....
	9010 88	3239 80	10 00	25894 55	4222 72 322	00 153 00	518 43	500 00	5716 15

Supplementary Account of Expenses common to both Branches of the Department :—

Stationery and Printing, ..	..	\$2259 63
General Expenses, ..	..	6473 73
Expenses.. Gold, —Coal, ..	..	\$8733 36
	..	5716 15
	..	160 00
		\$14,609 51

## OTHER THAN GOLD.

MINES DEPARTMENT for 12 Months ended December 31st, 1869.

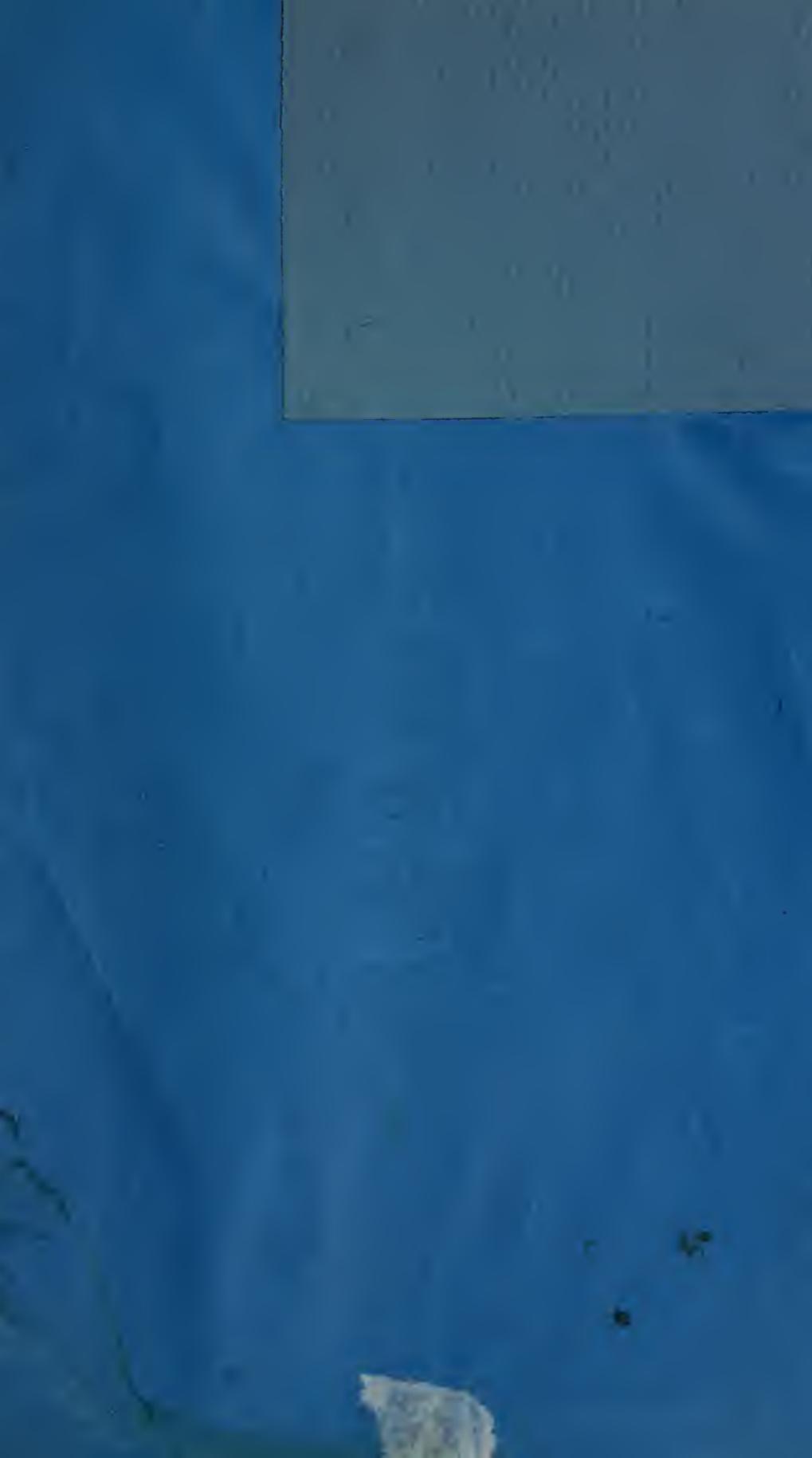
COUNTIES.	RECEIPTS.			EXPENDITURE.			Totals.
	Licences to Search.	Licences to Work.	Royalty.	Totals.	Return Licences to Search.	Return Licences to Work.	
Antigonish . . . . .	180 00	200 00	\$911 20	\$180 00	\$20 00	20 00	20 00
Cumberland . . . . .	780 00	750 00	24315 24	1891 20	20 00	20 00	20 00
Cape Breton . . . . .	640 00	500 00	13014 95	25705 24	40 00	40 00	40 00
Pictou . . . . .	500 00	400 00	200 00	35 90	635 90	.....	.....
Inverness . . . . .	400 00	40 00	.....	.....	40 00	.....	.....
Annapolis . . . . .	40 00	140 00	.....	.....	140 00	.....	.....
Colchester . . . . .	40 00	40 00	.....	.....	40 00	20 00	20 00
Hants . . . . .	40 00	40 00	.....	.....	40 00	.....	.....
Lawrenceburg . . . . .	40 00	40 00	.....	.....	40 00	.....	.....
Kings . . . . .	40 00	140 00	.....	.....	140 00	20 00	20 00
Richmond . . . . .	220 00	.....	.....	99 70	319 70	20 00	20 00
Victoria . . . . .	.....	.....	.....	.....	.....	.....	.....
Guy'sborough . . . . .	.....	.....	.....	.....	.....	.....	.....
	3160 00	1200 00	38376 99	42736 99	160 00	.....	160 00

## STATEMENT

RECEIPTS AND EXPENDITURE FOR TWELVE MONTHS ENDED DECEMBER 31ST, 1869.

RECEIPTS.  
EXPENDITURE.

Rents (Gold).....	\$ 9010 88	Salaries and Surveys (Gold).....	\$ 4222 72
Royalty.....	9329 80	Return Rents.....	322 00
Mill Sites.....	10 00	Return Royalty.....	153 00
Prospecting Licenses.....	7453 87	Royalty Commission.....	518 43
Licenses to Search (Coal).....	3160 00	Lands .....	500 00
Licenses to work.....	1200 00	Return Licenses to Search .....	160 00
Royalty.....	38376 99	Stationery and Printing.....	2259 63
		General Expenses.....	6473 73
	<hr/>	<hr/>	<hr/>
	\$ 68541 54		\$ 14609 51



Mr. K. M. G. H.

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1869

Nova Scotia. Dept. of Mines  
Annual report on mines

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